

No. 2996

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United States  
Circuit Court of Appeals<sup>2</sup>

For the Ninth Circuit.

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Transcript of Record.

(IN THREE VOLUMES.)

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WILSON & WILLARD MANUFACTURING  
COMPANY, a Corporation,

Appellant,

vs.

UNION TOOL COMPANY, a Corporation, ED-  
WARD DOUBLE, ROSA EICHENHOFER,  
as Administratrix of the Estate of FRIED-  
RICH EICHENHOFER, Deceased, and  
GEORGE L. CHADDERDON,

Appellees.

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VOLUME III.

(Pages 737 to 1046, Inclusive.)

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Upon Appeal from the United States District Court  
for the Southern District of California,  
Southern Division.

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(Testimony of Arthur P. Knight.)

Q. 37. What portion, if any, of the Wilson underreamers, either as exemplified in "Complainants' Exhibit Wilson Underreamer," or "Complainants' Exhibit Wilson Underreamer No. 2," or in the Wilson patent, corresponds in function and effect to the parts in the Double reamer related to the upward and inward inclination of these dovetails?

A. The downward and inward inclination of the bearings, 9, shown in the Wilson patent corresponds in function to the upward and inward inclination of the dovetails in the Double patent, the downwardly and inwardly inclined bearings, 9, in the Wilson patent being related to the vertically extending or parallel faced dovetails or shoulders, 2.2, in the Wilson patent in the same manner that the parallel faces on the lower portions of the transverse portion of the downward extension, 6, in the Double patent is related to the upwardly and inwardly inclined dovetails in the slip ways, 9, of the Double patent; the fact that the inclination is on the upper out bearing and the straight or parallel face is on the lower inner bearing in the Double patent, while the inclination is on the lower inner bearing and the straight or parallel face is on the upper outer bearing in the Wilson patent, amounting to the same thing in its mechanical effect.

Q. 38. In your answer to question 14 in referring to the Double [613] underreamer as exemplified in Complainants' Exhibit Double Patent, the patent in suit, you say in referring to these upwardly and inwardly inclined dovetails: "These dovetails, there-

(Testimony of Arthur P. Knight.)

fore, do not come into action in the normal and expanding and collapsing operation except when the tilt slips are fully expanded in the position shown in Figure 1." In this respect how do the dovetails of the Wilson underreamer compare?

A. The same thing is true with respect to the dovetails in the Wilson patent and Wilson underreamer, inasmuch as the dovetails of the cutters and on the slip ways separate as soon as the cutters begin to move downwardly, this separation being due to the bearing faces, 4.3, on the cutters riding downwardly and slightly inwardly on the bearing faces, 9, in the Wilson reamer, thereby causing the shoulders, 4.2, on the cutters riding downwardly and slightly inwardly on the bearing faces, 9, in the Wilson reamer, thereby causing the shoulders, 4.2, on the cutters to incline downwardly and inwardly away from the shoulders, 2'', on the slip ways, so that if these shoulders contact at all it would only be at their upper ends. In the case of the Wilson, as well as in the case of the Double underreamer, when the underreamer is being drawn up within the shoe, the pressure of the shoe is inward on the tilt slips or cutters, so as to hold them toward the inside bearing faces and away from the outside bearing faces; as the pressure is wholly inward, and the outside bearings furnished by the dovetails can only resist outward pressure, they cannot have, in either case, any effect in this inward tilting and downward sliding movement of the cutters or tilt slips as they pass upwardly within the shoe.

(Testimony of Arthur P. Knight.)

Q. 39. Referring to "Defendant's Exhibit O'Donnell & Willard Patent." You have stated that the upward thrust in the underreaming, with both the Double underreamer and the Wilson underreamer, is taken at the upper ends of the shanks of the bits. Compare this with such O'Donnell & Willard disclosure.

A. The only means described in the O'Donnell & Willard patent for taking this thrust is the shoulders, 15 and 15', on the bits [614] which engage with the end of the body. The upper ends of the shanks of the cutting jaws appear to have small flat faces which may engage on the bearings on the body, but nothing is said in the specification as to that.

Q. 40. Referring to the "Defendant's Exhibit O'Donnell & Willard Underreamer," what are the facts in this respect in regard to that device?

A. (Witness again inspects said exhibit.) In "Defendant's Exhibit O'Donnell & Willard Underreamer" these bearing faces at the upper ends of the cutting jaw shanks are not present, as these upper ends are beveled off and in the case of this underreamer the thrust-bearing is wholly at the shoulders corresponding to the shoulders, 15 and 15', in the patent.

Q. 41. Are you familiar with the "Complainants' Exhibit W. W. Wilson Hypothetical Underreamer Drawing"?' A. Yes, sir.

Q. 42. In your testimony in regard to the Double underreamer, you have stated that in the collapsing action the tilt slips bear or have a fulcrum at or

(Testimony of Arthur P. Knight.)

near their upper ends on the flat parallel bearing faces and the pressure of the shoe is exerted inwardly on the outer faces of the tilt slips somewhat below this fulcrum but at a considerable distance above the lower or cutting ends of the tilt slips, so that even a limited movement of the portion of the tilt slips, which engages the shoe will produce a comparatively large throw of the cutting edges. To what extent would this be true of the construction illustrated in this W. W. Wilson hypothetical underreamer drawing?

Mr. BLAKESLEE.—This question, and all questions directed at the showing of this exhibit drawing, and the comparison of such showing with any other exhibits in the case, is and are objected to as incompetent, irrelevant and immaterial, and not concerning the issues of the present case, this objection being based upon [615] the objection originally urged against the introduction of this exhibit. And it is repeated that this exhibit drawing discloses a construction not identified as being identical with or having its parts and features all identical with any other exhibit in this case.

A. This feature would not be presented in an underreamer constructed according to this hypothetical drawing, for the reason that the stated feature depends on the projection of the portions of the reamer shanks through the slots or openings in the sides of the extension of the reamer body, so as to enable said portions to bear on the shoe at a relatively high point to give enlarged throw for the cutting edges, while



(Testimony of Arthur P. Knight.)

at the same time providing for the lateral and outside bearings extending down on the shanks of the tilt slips below the points of engagement with the shoe. In this underreamer shown in this hypothetical drawing wherein the shanks do not project through the sides of the extension of the reamer, the tilt slips or cutters can only engage with the shoe or casing below the lower end of the extension of the body.

Q. 43. (By Mr. LYON.) In this respect like what other exhibit in this case to which your attention has been directed does the Wilson hypothetical underreamer correspond, if at all?

Mr. BLAKESLEE.—Objected to as leading.

A. In this respect the underreamer shown in this hypothetical drawing is like the O'Donnell & Willard underreamer.

Q. 44. (By Mr. LYON.) What have you to say as to the comparative mode of operation or principle of coaction of the bits and body of the reamer in expansion and contraction as set forth in this W. W. Wilson hypothetical underreamer drawing, as compared with "Complainants' Exhibit Wilson Underreamer" or "Complainants' Exhibit Wilson Underreamer No. 2"?

A. By reason of the relatively low bearing for the shoe on the tilt slips or cutters, in this hypothetical sketch, the tendency [616] of the pressure of the shoe on the tilt slips or cutters when they reach the lower end of their movement is to cause the same to rock or teeter on the lower ends of the inner thrust-

(Testimony of Arthur P. Knight.)

bearings similarly to the final part of the operation of the O'Donnell & Willard cutters, whereas, with the Wilson underreamers, in which the bearing is provided at a lower relatively high point by reason of the projection of the shanks through the slots in the sides of the extension of the body, the bearing on the shoe does not, in normal operation, pass below the lower inside thrust-bearings, so that this rocking or teetering action is not presented.

Q. 45. Would you then say that the modes of operation and principle of coaction of the bits and body in collapsing or contracting, in this W. W. Wilson hypothetical drawing, and in the Wilson underreamers, are substantially the same or substantially different? A. It is substantially different.

Q. 46. If I understand your testimony correctly, the internal shoulder, 8, on the hollow mandrel or body of the underreamer of "Complainants' Exhibit Double Patent," takes the upthrust of the bits in underreaming? A. Yes, sir.

Q. 47. What takes a similar thrust in "Complainants' Exhibit Wilson Underreamer" or "Complainants' Exhibit Wilson Underreamer No. 2"?

A. The internal shoulder on the hollow body which is numbered 10 in the "Defendant's Exhibit Wilson Patent."

Q. 48. In the Double underreamer you have referred to a downward extension having opposite parallel bearing faces having a keyway therein. Is there anything in the Wilson underreamer corresponding to this; if so, point it out.

(Testimony of Arthur P. Knight.)

A. Referring to the Wilson patent for identification of the parts, the downward extension consists of the prongs, 2, with the crosspiece, 11, connecting the same, and the parallel bearing faces with this downward extension are represented in this patent by the bearings, 9, which are so slightly inclined that they perform [617] the function of parallel bearing faces. And the key way in the downward extension of the Wilson patent is represented by the open space or a portion of the open space between the prongs, 2, within which space the cross-head, 5, on the spring-actuated rod [618] travels vertically, this being the function of the key-way in the Double patent.

Q. 49. In "Complainants' Exhibit Double Underreamer With Enlarged Slot," where is this key-way that you have last referred to?

Mr. BLAKESLEE.—Objected to as leading, and as assuming the presence of such key-way in this exhibit.

A. This key-way is in this exhibit represented by the open space, or a portion of the open space, left between the side members of the downward extension.

Q. 50. (By Mr. LYON.) In this last exhibit to which I have called your attention has the enlarging of the slots changed in any manner the interrelation of the parts or their modes of operation; and, if so, point out in what respect?

Mr. BLAKESLEE.—Objected to as leading, and as assuming that there has been an enlargement of

(Testimony of Arthur P. Knight.)

any slot in this exhibit.

A. No, sir, it has not changed the mode of operation or the interrelation of the parts.

Q. 51. (By Mr. LYON.) Comparing this "Complainants' Exhibit Double Underreamer With Enlarged Slot" with "Defendant's Exhibit Double Underreamer," in what respects do they differ?

A. The transverse portion of the downward extension has been cut away at its middle portion to form a transverse slot extending through the extension from side to side of substantially the same width as the slot between the inner faces of the dovetails.

Mr. LYON.—You may cross-examine.

#### Cross-examination.

In referring to "Complainant's Exhibit Double Patent," I do not find any exact definition in the specification of this downward extension except by reference to a number on the drawing and by a statement of its functions. The number is number 6. That term Hollow Slotted Extension must refer to No. 6 in the specification. The hollow in this extension is a space or hole in [619] which the spring-actuated rod plays.

Q. 57. And the slot in this extension is the opening cut through this extension and through this hollow and in which the key plays vertically, is it not?

A. That is a portion of the slot, yes, sir.

Q. 58. I am only talking now about the slot in the part which the specification discloses, as you have testified, as an extension. That slot is the one I have referred to in my last question, is it not?



(Testimony of Arthur P. Knight.)

A. I take it that the slot you are referring to is the slot numbered 7 in the drawing, and referred to in the specification in some places as a key-way.

Q. 59. That is the one I am referring to, yes.

A. This is only a portion of the slot in the hollow slotted extension.

Q. 60. Where is the rest of that slot?

A. In those portions of the extension which are at each side of the transverse portion to which the leader line from the numeral 6 leads. I will say in this connection that in patent office drawings, wherever a part is shown partly in section and partly in elevation at the back, it is usual to apply the numeral to the part shown in section, unless otherwise it would lead to confusion; and therefore I take it that this numeral 6 only identifies the downward extension as a whole while referring to this part of it which is presented in section in the drawing.

Q. 61. The upwardly and inwardly sloping tapering dovetail slip ways on the body and the shoulders on the body which receive the upthrust of the cutters, are given separate and independent reference numerals in the specification of this patent, are they not?

A. Yes, but this is the universal practice in the patent drawings, to apply additional numerals to subordinate parts of a member which has already been given a numeral designating it as a [620] whole; in fact, the specification of the Double patent may be read as indicating the slip ways either as the

(Testimony of Arthur P. Knight.)

channels in which the tilt slips travel or as the confining walls which form such channels.

Q. 62. And these parts are given a distinct and separate reference identification in the Double patent specification, are they not? A. Yes, sir.

Q. 63. And there is no statement in this specification that these parts, nor the parts or shoulders, 8, come within the broad designation of "hollow slotted extension," is there?

A. I do not find in the specification any definite reference to the hollow slotted extension, so I cannot answer the question.

Q. 64. Do you find anywhere in the specification of this patent any reference to the shoulders, 8, or the slip ways, 9, or either of them, as being part of the extension, 6?

A. I think that the statement in lines 50 to 55, page 1, of the Double specification, is capable of being read in the sense that the shoulders, 8, and the slipways, 9, are a part of the extension along with the oppositely arranged parallel bearing faces and the key way, 7, therein, the language being as follows: "A downward extension 6, with oppositely arranged parallel bearing faces having a key way 7, therein, shoulders 8 at the sides of such extension, and upwardly and inwardly sloping tapering dovetail slipways 9 beneath said shoulders."

Q. 65. The shoulders, 8, are unaltered portions of the stock of the hollow mandrel or body, 1, are they not?

A. They are portions of the body, 1, but I could

(Testimony of Arthur P. Knight:)

not say that they are unaltered, since they are formed by the cutting away of the portions of the body to form the extension and mark the upper limit of the extension.

Q. 68. Now, in "Complainants' Exhibit Wilson Reamer," or "Complainants' Exhibit Wilson Reamer No. 2," do you find any part like the part identified and described as the extension, 6, in "Complainants' [621] Exhibit Double Patent"?

A. Before answering that question I would have to know whether you limit the extension, 6, to the transverse portion extending between the slip ways or to the extension downwards from the hollow body below the thrust-shoulders.

Q. 69. I limit it to the part to which the leading line to the reference character 6 extends in the drawing of the Double patent in suit, namely, the part having flat parallel outer faces, a vertical internal hollow, and a vertical transverse slot cutting such hollow.

A. According to the definition you have given—read that question before that, please. (Question No. 68 read by the reporter.) According to the definition you have given in your question of this extension I find substantially the same extension in the "Complainants' Exhibit Wilson Reamer" and "Complainants' Exhibit Wilson Underreamer No. 2."

Q. 70. Please describe such extension, referring to such exhibit.

A. This extension consists of the portion of these

(Testimony of Arthur P. Knight.)

underreamers which is below the thrust-shoulders at the upper ends of the prongs and includes these prongs, the cross-piece or bolt near the bottom of the prongs, and is formed with an internal space between the prongs, which is both a hollow for receiving the spring-actuated rod and a slot for receiving the key or cross piece on said rod and for receiving the shanks of the cutters.

Q. 71. The hollow and the slot referred to are one and the same open space, are they not?

A. Yes, sir.

Q. 72. Where are the parallel flat faces of this extension as you testify you find it in the Wilson underreamer?

A. They are near the lower ends of the prongs just above the spreading-bearings, these being substantially parallel to the extent that they perform the function of parallel faces as thrust-bearings.  
[622]

Q. 73. They are not parallel, are they?

A. Not absolutely.

Q. 74. And there are four of such faces, are there not? A. Yes, sir.

Q. 75. And there is an entirely open space between the adjacent edges of the faces of such parts, with the exception of the round cross-bolt, is there not?

A. Yes, but this does not in any way affect the mode of operation of each pair, which acts in effect as a single bearing face.

Q. 82. Now, defining the extension of the Double patent structure as the part 6 having outer flat par-

(Testimony of Arthur P. Knight.)

allel faces and a longitudinal hollow and a longitudinal transverse slot, the slip ways, 9, are on the body, 1, and an integral portion thereof, are they not?

A. If you mean by this that they are on the body and not on the extension, I do not think so.

Q. 83. They are not on the extension, 6, as defined in my last question, are they?

A. Yes, sir, in my opinion they are.

Q. 84. What connects them with the extension, 6?

A. As shown in Figures VII, and VIII they are integral with the extension, 6, and form an integral portion thereof.

Q. 85. And they are likewise integral with the hollow mandrel or body, 1, are they not?

A. Yes, sir.

Q. 86. Now, in addition to resisting outward strains of the cutters, the co-engaging dovetails on the cutters, and on the lower end of the body, of the Double patented underreamer, cause the tilting of these cutters when the cutters are longitudinally moved during such co-engagement, do they not?

A. No, sir, not according to the mode of operation described [623] in the patent.

Q. 87. Is there anything shown in the drawings or disclosed in the specification of this patent to prevent such tilting action during such longitudinal movement of the cutters with said dovetail co-engagement?

A. I have already testified that in normal operation of the tilt slips, which is the operation described



(Testimony of Arthur P. Knight.)

in the patent, the dovetails move out of engagement as soon as the sliding movement commences, so that I do not see that I can answer your question.

Q. 88. Is there anything shown in "Complainants' Exhibit Double Underreamer" or in "Defendant's Exhibit Double Underreamer," to prevent such tilting action of the cutters in longitudinal movement of the cutters with the dovetails in such coengagement?

A. Yes, sir, the projection of the shanks of the cutters in such manner that they engage with the shoe above the lower inside thrust-bearings, so that the inward pressure of the shoe holds the cutters in engagement with the inside bearing faces, and moves them away from engagement with the outside bearing faces constituted by the dovetails as soon as the sliding movement commences. In the Double construction this separation is due to the tapering of the dovetails which leads to separation by longitudinal movement.

Q. 89. Leaving the casing and shoe out of consideration, are you able to state what tilting action of the cutters of the Double reamer takes place during the operation of the reamer beneath the shoe?

A. In the operation of the reamer beneath the shoe the pressure on the cutters or tilt slips is at their lower outside edges constituting the cutting edges. If, for any reason, there is an inward pressure on these cutting edges, imparted from the walls of the well, there will be a tendency for the lower ends of the cutters to move inwardly, rocking on the

(Testimony of Arthur P. Knight.)

inside thrust-bearings [624] and causing their upper ends to move outwardly; this outward movement being limited and governed by the outside bearing faces constituted by the dovetails, so that if during this inwardly pressing action on the cutting edges there is also a downward dragging action on the cutters, causing them to slide downwardly in the slip ways, there will be an outward movement of the upper ends of the cutters or tilt slips, which outside movement increases as the tilt slips descend by reason of the taper of the dovetails and the resulting increase in width of the ways within the dovetails.

Q. 90. Now, if these same conditions exist and the cutters move upwardly, will not the coaction of these dovetails produce a tilting of the cutters in the opposite direction, causing an expansion or partial expansion of the lower ends of the cutters?

A. Yes, sir.

Q. 91. I take it, from what you have recently stated, that the principal pressure upon the cutters, when they are reaming in the hole, is inward pressure at the lower ends of the cutters—am I correct?

A. There is nothing that I have said that I know of to justify any such conclusion, as I do not know what is the principal pressure.

Q. 92. Possibly I am erring in defining that as the principal pressure, but there is such pressure as you understand it, is there not?

A. In the conditions necessarily arising at the bottom of the well drilled in rock of varying hard-

(Testimony of Arthur P. Knight.)

ness, I do not see how there can be any escape from the conclusion that there will be inward pressures at some times, outward pressures at other times, upward pressures and probably sometimes downward pressures, due to dragging or pinching of the tool in being raised, so that in answer to your question I would say that, in my opinion, such [625] inward pressures would exist at time.

Q. 93. And these inward pressures are imparted to the flat parallel faces of the extension, 6, through the shoulders, 18, are they not? A. Yes, sir.

Q. 94. And in "Complainants' Exhibit Double Underreamer" these inward pressures are imparted also through the lateral extensions on the cutters to the flat faces upon the body beneath the V-shaped notches on the body, are they not? A. Yes, sir.

Q. 95. In "Complainants' Exhibit Double Patent," the inside bearings for the cutters are the portions of the flat parallel faces of the extension, 6, above the inwardly inclined faces, 25, on said extension, are they not? A. Yes, sir.

Q. 96. And there are no such flat parallel inside bearings at the lower portions of the prongs of the Wilson underreamer, are there? A. Yes, sir.

Q. 97. Please point them out.

A. I can do this best by reference to the Wilson patent wherein these bearings are indicated at 9 directly above the spreading-bearings or bevel end faces, 17, at the bottom of the prongs.

Q. 98. You don't wish us to understand that these surfaces are parallel, do you?



(Testimony of Arthur P. Knight.)

A. They are not absolutely parallel, but they are parallel in that they perform the function of parallel faces.

Q. 99. There is a divergence between the planes, of these faces, 9, is there not?

A. Yes, sir, a slight divergence.

Q. 100. And with the lateral extensions on the cutters of the Wilson reamer moving over such faces, 9, such lateral extensions [626] are bound to either diverge or converge in such movement, are they not?

A. Yes, sir, slightly.

Q. 101. Now, in "Complainants' Exhibit Wilson Underreamer," or "Complainants' Exhibit Wilson Underreamer No. 2," or "Defendant's Exhibit Wilson Patent," if there is any downward extension shown it comprises two spaced prongs separated throughout their entire lengths by a single open space or hollow, bridged near its lower portion by a round removable bolt, does it not? A. Yes, sir.

Q. 102. Now, the cutters of the Wilson underreamer are guided or confined in their movements outwardly, and are caused to tilt or rock entirely by the coaction of parts of the cutters with the spaced prongs of the lower end of the body and with nothing between such prongs, are they not?

A. They are confined outwardly in their collapsing movement by the pressure of the shoe and are caused to tilt inwardly by coaction of bearings on their inner faces with spreading-bearings on the downward extension of the body, and by engagement at their upper ends with means for resisting inward

(Testimony of Arthur P. Knight.)

movement at such upper ends, said means consisting initially of the lower faces of the block, 7, shown in the body of the reamer in the Wilson patent, and through the rest of the movement consisting of the so-called cross which engages in the recesses, 18, in the inner faces of the cutters.

Q. 103. And that block, 7, is a detachable part, is it not?

A. Detachable, yes, but immovable during the working operation.

Q. 104. And it has no transverse slot, has it?

A. No, sir.

Q. 105. And it is entirely above the cross or T-head? A. Yes, sir.

Q. 106. And the cross moves with the cutters, does it not? [627]

A. As far as concerns their vertical movement, yes.

Q. 107. And the extension which you have referred to in the Wilson reamer consists of two spaced prongs, 2, does it not?

A. Yes, and in my opinion includes the cross-piece, 11, also.

Q. 108. You mean the removable retaining bolt at the bottom? A. Yes.

Q. 109. And there is no slot or hollow in that bolt, is there? A. No, sir.

Q. 110. And the slip ways or dovetails with which the dovetails on the cutters coact are on the prongs referred to by me, are they not? A. Yes, sir.

Q. 111. And the upper thrust-bearings such as 10

(Testimony of Arthur P. Knight.)

in the Wilson patent, are on the body and entirely between these prongs, are they not?     A. Yes, sir.

Q. 112. Now, the bearings or shoulders at the sides of the cutters of the Wilson underreamer never engage with the block, 7, do they?     A. No, sir.

Q. 113. Nor do such lateral bearing shoulders ever engage with the cross or T-head, do they?

A. No, sir.

Q. 114. And the opening between the slip ways in the Wilson reamer which permit the slips to project or extend outwardly between the dovetails, is the same opening that extends all the way through between the prongs, is it not?

A. It is a part of the same opening.

Q. 115. How do you arrive at the conclusion that the deviation from parallelism in the surfaces, 9, of "Defendant's Exhibit Wilson Patent," is not sufficient to permit or cause any downward movement of the tilt slips due to inward pressure thereon?

A. For the reason that the taper or inclination of these faces [628] as shown in the drawing is such that any inward pressure with the ordinary coefficient of friction of metallic surfaces would not, in my opinion, cause a downward sliding action of itself; and for the further reason that if the inward pressure would cause the downward sliding action, then these faces would have the same function as the bevel end faces, 17, and there would be no reason for the sharp demarkation or differentiation between these faces 9 and 17; also for the reason that in the Wilson patent it is stated, "9 designates the spread-

(Testimony of Arthur P. Knight.)

ing-bearings for holding the cutters 4 apart." also "the spreading-bearings 9 of the lugs 2' engage the expansion bearing-faces 4<sup>3</sup> of the cutters at the same time, so that the tool is practically a unit during the operation of underreaming"; also, "when the cutters are fully drawn up they seat on the down thrust bearing 10 and the spreading bearings 9, while the shanks are rigidly held throughout their length. Said spreading-bearings are on lugs 2', which constitute wedges for wedging the cutters apart, and said bearings are at the sides of the lower ends of the body, thus engaging the outer edges of the cutters to hold the cutters apart." This, in my opinion, leads to no other conclusion but that these bearings, 9, hold the cutters apart, and therefore act in the manner of parallel bearing faces as distinguished from spreading faces, in their primary function.

Q. 116. But it is true, is it not, that with the upper ends of the cutters held from outward or inward movement during the traverse of these faces, 9, by the lateral shoulders on the Wilson cutters, the lower ends of the cutters will be caused to move relatively either in approach or separation?

A. Yes, sir, slightly.

Q. 117. And no tilting action can take place under the same conditions when the shoulders, 18, of the cutters of the Double Underreamer are in contact with the flat parallel faces of the extension, 6, the dovetails of the cutters and on the body being [629] held out of engagement; is that not correct?

A. This slight tilting action does not occur in the



(Testimony of Arthur P. Knight.)

Double underreamer under the conditions stated. This condition, however, is that which occurs in normal operation in passing up in the shoe and the slight tilting action of the Wilson reamer under these conditions is not effective in producing sufficient collapse to enable the cutters to pass up within the shoe, this effective action not being secured until the spreading-bearings are reached.

Q.118. But this slight tilting action so caused in the operation of the Wilson underreamer constitutes an effectual initiation of collapsion and termination of expansion, does it not?

A. Yes, sir, as far as it goes.

Q. 119. You don't find any key in the Wilson patent, or in either of the Wilson reamer exhibits, such key engaging with the cutters and holding them upon the spring-actuated rod, do you?

A. I consider the cross piece on the spring-actuated rod such a key.

Q. 120. There is no key-way on the spring actuated rod to receive this key and permit its attachment or detachment, is there?      A. No, sir.

Q. 121. The key or block engaging the spring at its lower end and in "Complainants' Exhibit Wilson Underreamer No. 2," or "Complainants' Exhibit Wilson Underreamer," respectively, while holding or stopping the spring, at the same time permits assembling of the spring-actuated rod and the cutters at the lower end of the body, does it not?

A. Yes, sir.

Q. 122. And in the Double underreamer, either in

(Testimony of Arthur P. Knight.)

the Patent or the exhibits, the body has to be unjointed to permit the insertion of the spring-actuated rod from above and above the fixed integral shoulder which holds the spring, does it not?

A. The rod might be inserted itself without this unjointing; [630] but, taking the rod and spring as a whole, it would have to be inserted from above.

Q. 123. And also the retaining nut at the upper end of the rod, is that not so? A. Yes.

Q. 124. Inasmuch as the slip ways, 9, of "Complainants' Exhibit Double Patent" are inclined, and their inclination enters into the action of the cutters, are their functions in relation to the tilt slips the same as the parallel dovetails upon the prongs of the Wilson underreamer? A. Yes, sir.

Q. 125. Do you mean to testify that this inclination of the slip ways, 9, in as far as it, by itself, affects the movements of the cutters, is identical with the function of the parallel dovetails on the prongs of the Wilson underreamer?

A. Yes, sir, when taken in co-relation with the co-acting parts the dovetails by themselves could do nothing. It requires also the coaction of the lower inside bearing faces; and the inclination of these lower inside bearing faces in the Wilson reamer co-acting with the parallel dovetails, is the same in effect as the parallelism of the inside bearing faces coacting with the inclined dovetails of the Double reamer, in my opinion.

Q. 126. But there are flat faces concerned in the action of the inclined dovetails in the Double reamer,

(Testimony of Arthur P. Knight.)

whereas, there are inclined faces concerned in the action of the parallel dovetails in the Wilson reamer; is that not correct?     A. That is the case exactly.

Q. 127. And this inclining of the dovetails in the Double underreamer necessitates thinning out the metal of such dovetails progressively toward the lower ends thereof, does it not?

A. Yes, or making them thicker at the upper ends, whichever way you choose to put it. [631]

Q. 128. Both of the surfaces, 9 and 17, at the lower ends of the prongs of the reamer disclosed in "Defendant's Exhibit Wilson Underreamer Patent" are in those portions of the prongs which are defined as being downwardly projecting lugs, 2', to spread the cutters apart, are they not?     A. Yes, sir.

Q. 129. Now, assuming that in the operation of the underreamers there is a tendency of the cutters to rotate upon their longitudinal axes under the stresses and impacts of various formations, such as boulders and the like, encountered, do not, in your opinion, the lateral extensions of the cutters in the Wilson underreamer, which bear laterally on the shanks of the cutters, upon the surfaces on the prongs, tend more effectually to resist such tendency to rotate or twist than the inner shoulders, 18, on the cutters of the Double underreamer patent and the coengaging flat parallel faces of the extension, 6?

A. No, sir, not when taken in connection with the side walls formed by the slip ways which are, in my opinion, the main factors in resisting rotative or tangential strains.

(Testimony of Arthur P. Knight.)

Q. 130. Is not such rotative or tangential strain imparted directly to the respective prongs of the Wilson underreamer, and thereby, in the main, resisted, taken up and killed at such prong?

A. You are talking, I believe, about strains tending to turn or move the cutter tangentially around the longitudinal axis of the tool. Such strains are resisted most effectively by surfaces opposed transversely to the line of strain, such surfaces in both the Double and Wilson reamers are afforded by the side walls of the slip ways. The resistance offered by the lower inside thrust-bearings, represented by the faces, 9, in the Wilson patent, and the parallel bearing faces in the Double patent, make but a slight angle with the tangential direction, and are ill adapted to resist tangential strain; so that, in my opinion, such tangential strain as may exist will be taken mostly by the side walls of [632] the slip ways, which, as I have stated, are better adapted to resist these strains than the Double underreamer, since they extend lower down. If, however, you intend to refer to an action tending to tip the cutters in a horizontal plane around the centers of gyration of the cutters themselves, then the spreading out of these bearing faces will be of advantage in resisting such strain, as it prevents a greater leverage effect. I do not see, however, how such a gyratory action on the cutters could occur in any material degree.

Q. 131. Such gyratory action would tend to follow inward pressure at the lower ends of the cutters; would it not? A. Not necessarily.



(Testimony of Arthur P. Knight.)

Q. 132. The gyratory actions you refer to are those which concern oscillation upon the axis and transverse of the cutter, are they not?

A. That is one gyratory action, but that is not the one that I supposed that you were referring to.

Q. 133. What is the axis of the gyratory action you have referred to?

A. It would be a vertical axis so that the cutter would tend to turn around a vertical axis due to some inward pressure, say, at one side of the vertical axis.

Q. 134. That is the action you have referred to in those answers in which you have specified the dovetails as resisting such action?

A. The dovetails do resist such action, and more effectively in the Double underreamer than in the Wilson underreamer; but my reference to the dovetails in resisting the rotary action was with especial reference to their resisting rotary strain due to tangential action around the axis of the underreamer as a whole.

Q. 135. Then the lateral extensions of the Wilson cutters and the coacting surfaces, 9, tend best to oppose which of the actions we have been discussing?  
[633]

A. The gyratory action tending to spin the cutter around its own vertical axis of gyration.

Q. 136. And the lateral extensions on the cutters of "Complainants' Exhibit Double Underreamer" and the flat lateral faces on the body coacting therewith, will act similarly in resisting such motions, will they not?

(Testimony of Arthur P. Knight.)

A. Yes, sir, but in the Double underreamer this gyratory strain is resisted also by the dovetails at this lower portion.

Q. 137. Which dovetails do you refer to, please; that is, how do they lie with respect to the longitudinal axis of the reamer body?

A. I refer to the lower portions of the tapering inclined dovetails which lie on the inner faces of the slip ways.

Recalled.

Cross-examination Resumed.

(By Mr. BLAKESLEE.)

Q. 138. In the cutters of the Wilson underreamer—and when I use the term Wilson underreamer I comprise the underreamer disclosed in “Defendant’s Exhibit Wilson Underreamer Patent,” and the underreamers constituting “Complainant’s Exhibit Wilson Underreamer,” and “Complainants’ Exhibit Wilson Underreamer No. 2”—do you find any portions such as the inwardly projecting shoulders, 18, of the Double underreamer cutters, arranged to project inwardly of the shanks of the cutters, such projections extending transversely of the shanks?

A. No, sir, but I do find slips or cutters provided with inwardly projecting shoulders.

Q. 139. Do the shoulders which you have last referred to coact with the spreading-surfaces, 9 and 17, on the prongs of the Wilson underreamer?

A. Yes, sir.

(Testimony of Arthur P. Knight.)

Q. 140. Please describe and define these shouders in the Wilson cutters. [634]

A. These may be best defined by reference to the Wilson patent wherein the projecting shoulder is constituted by the expansion bearing faces, 4<sup>3</sup>, and the shoulders, 16, at the upper ends thereof.

The spillway, 9, on the Double patent reamer body, 1, are, I think, a portion of the extension, 6, although they are likewise integral with the hollow mandrel or body.

Q. 141. You do not refer to the shoulder which limits the shoulders, 4<sup>3</sup>, at their lower portions, do you?

A. No. sir.

Q. 142. And these shouders, 4<sup>3</sup>, in so far as they coact with the spreading surfaces on the prongs, are entirely lateral of the shank of the Wilson cutter, are they not? A. Yes, sir.

Q. 143. And these shoulders such as 4<sup>3</sup> incline outwardly and upwardly with respect to the inner faces of the shanks of the Wilson cutters so that their facial plane is at an angle with the inner facial plane of the shanks of the Wilson cutters; is that not so?

A. Yes, sir; slightly.

Q. 144. And there is no part of those shoulders which projects inwardly of the inner facial plane of the shank of the Wilson cutter, is there?

A. No, sir.

Q. 145. And the shoulder, 18, of the Double cutter projects inwardly of the inner facial plane of the shank of the cutter, does it not?

A. Projects inwardly with reference only to a por-

(Testimony of Arthur P. Knight.)

tion of the inner face of the shank.

Q. 146. And what portion is that?

A. That portion is between the upper and lower portions and is cut back.

Q. 147. In other words, the metal of the shank is cut out above [635] the shoulder of the Double cutter to form a pocket above the shoulder, thus resultantlly forming the shoulder; is that not correct?

A. Yes, sir.

Q. 148. And there is no such pocket in the inner face of the shank of the Wilson cutter, is there?

A. Yes, sir.

The Double underreamer cutters are weakened by the V-shaped groove across the backs.

Q. 155. Aside from the cutters and the suspending T-rod, in the North patent, there is no inside bearing for the cutters during their collapsion, is there?

A. No, sir.

The Swan patent "Defendant's Exhibit U. S. Swan Patent," discloses a hollow-slotted extension at the lower end of the body. That extension has openings at the sides through which the cutters project laterally so that the cutters may engage with the shoe of the casing in order to permit collapsion of the cutters. The cutters of the Swan patent are, during their collapsing action, guided by engagement of dovetails on the cutters and on the body portion extension, so as to move in straight lines without tilting.

Q. 164. And will you please compare the hollow-slotted extension of the Swan patent underreamer

(Testimony of Arthur P. Knight.)

with the hollow-slotted extension of the Double underreamer as disclosed in "Complainants' Exhibit Double Patent" and "Defendant's Exhibit Double Reamer"?

A. In both the Swan underreamer and the Double underreamer this hollow-slotted extension has ways in which the cutters are movable. In the Swan reamer these ways are guide-ways which restrain the movement to a straight line inclined movement, whereas, in the Double underreamer, these ways are slip ways which permit of tilting as well as vertical movement. In the Swan reamer this hollow-slotted extension controls the movement and position [636] of the cutters wholly by sideways; in the Double underreamer the hollow-slotted extension controls the position of the cutters partly by spreading-bearings which co-operate with shoulders on the cutters to produce the tilting action.

Q. 165. In both of the hollow-slotted extensions of the Swan patent reamer and the Double patent reamer there are vertical bores or chambers to accommodate the spring-actuated rods and transverse slots to accommodate the cutter carrying keys, is that not correct?     A. Yes, sir.

Q. 166. And the outer faces of these hollow-slotted extensions in both instances receive in engagement inner surfaces on the cutters in both instances, do they not?     A. Yes, sir.

Q. 167. And the ways which confine the cutters against the lateral displacement in both the Swan patent reamer and the Double patent reamer are dis-



(Testimony of Arthur P. Knight.)

posed laterally of these outside faces of the hollow-slotted extension, are they not?     A. Yes, sir.

Q. 168. And are not the ways in Swan patent reamer slipways?

A. Yes, sir, and they are also guide-ways; slipways being, according to my understanding, a broader term.

Q. 169. Then that term includes the ways in the reamers of both the Swan and Double patents, does it not?     A. Slipways, yes, sir.

Both reamers have shoulders at the upper end of the hollow-slotted extension to receive the upthrust of the cutters. The cutters of the Swan reamer are suspended by a key (but not tiltingly suspended) carried at the lower end of a spring-actuated rod, the ends of the key received in recesses at the inner faces of the cutters. Both reamers have a spring confined within a hollow body. In both cases the reamer body is jointed to permit installation of the spring-actuated rod and spring. With the Swan underreamer and the Double underreamer. [637]

Q. 170. Now, looking similarly at the lower end of the Wilson patent reamer, and at the lower end of "Complainant's Exhibit Wilson Reamer," and at the lower end of "Complainants' Exhibit Wilson Reamer No. 2," with the retaining bolt numbered 11 in the Wilson patent removed, do you find any such H-shaped conformation?

A. Not if the retaining bolt is removed.

Q. 177. During any expansion or collapsion or tilting of the cutters of the Double patent in suit, when

(Testimony of Arthur P. Knight.)

the shoulders, 18, are in engagement with the flat parallel faces of the extension, 6, under any working conditions, the upper ends of the cutters must necessarily slide inwardly or outwardly upon the key, 17; is that not correct?

A. On the contrary, they do not slide in the normal working operation when the collapsion or expansion is due to coaction with the shoe at the bottom of the casing.

Q. 178. I will ask the question to be re-read, if the witness wishes, and call his attention to its scope.

A. Read the question, please. (Question 177 read by the reporter.) In view of the expression "necessarily slide inwardly or outwardly," my answer was correct, as I take it, since this inward and outward sliding does not occur in the normal operation in passing into or out of the shoe, although it may occur in slight degree under special conditions when there is an inward pressure at the lower ends of the cutters accompanied by a downward drag on the cutters relatively to the body.

Q. 179. Now, if the cutters, of "Complainants' Exhibit Double Patent," tilt upon fulcra consisting of the shoulders, 18, when such shoulders are in engagement with the flat parallel faces of the extension, 6, must not the upper ends of the cutters necessarily slide upon such key?

A. Under those conditions, yes.

Q. 180. And there are no surfaces in the Wilson reamer, are [638] there, such surfaces being parallel and upon which the cutters swing through

(Testimony of Arthur P. Knight.)

fulcra on the cutters?

A. It seems to me that the bearings of the cutters on the cross-head of the spring-actuated rod, in the Wilson reamer, answer this description.

Q. 181. Well, please answer the question, eliminating such cross-head or T-head in the Wilson reamer, and also consider such surfaces as being those extending generally lengthwise of the body and with which fulcra of the cutters engage intermediate of the ends of the cutters.

A. The lower end portions of the bearing faces, 9, do act as fulcra during the slight rocking or tilting action which ensues while the cutter is passing upwardly after its shoulder leaves the spreading-bearings or beveled faces at the lower ends of these bearings, 9; and while it is passing downwardly before the shoulders on the cutters reach said spreading-bearings. In this movement there is a slight deviation or change in inclination of the cutter due to the fact that its upper end remains at substantially the same distance from the axis of the tool while its lower end moves slightly in or out, as the case may be, by reason of the inclination of these faces, 9; therefore, inasmuch as the bearing faces on the cutter are in contact throughout this movement with the faces, 9, they must rock or flucrum on these faces to a limited extent.

Q. 182. And these faces, 9, do not come within my question as being parallel faces, do they?

A. They are not absolutely parallel, no, sir.

The cutters of the Canadian underreamer, Oil



(Testimony of Arthur P. Knight.)

Well Supply Company, Limited, of Canada's 4½ inch underreamer, are pivoted at their upper ends on a pin which is slidably mounted in the key-ways on the extension of the body. A spring mounted in this extension operates through an intermediate pin to raise the cutters to uppermost [639] position. The lower end of this extension of the body has spreading-bearings which engage with bearings on the cutters to cause their expansion and contraction in their vertical movement, the upper ends of the cutters engage with thrust-bearings on the body and the lower portion of the cutters have inside bearings which engage with inside bearings on the extension of the body, but there are no means provided for lateral support or for outside bearings for the cutters. In a sense there is a hollow slotted extension at the lower end of the body, but not in the sense in which this expression applies to the Double reamer.

Q. 185. What features of the hollow slotted extension, as you conceive of it, in the Double underreamer, is lacking with respect to the hollow slotted extension of this exhibit?

A. The slotting of the extension so as to provide for projection of the portions of the cutters or slips through the sides of the extension while providing by such sides of the extension for engagement with the sides of the cutters for lateral support thereof.

If the Canadian reamer was provided with dovetail ways to coact with the cutters there would at least be still one important difference between that

(Testimony of Arthur P. Knight.)

reamer and the Double in that the spring-actuated means for raising the cutters in the Canadian is contained within the extension. With the Double only a portion of the spring-actuated means is always within the hollow extension.

Q. 188. And in the collapsion and expansion of the cutters of the Double patent reamer, a portion of the spring-actuated rod is always within the hollow slotted extension, is it not?

A. Yes, sir, but not the portion which co-operates with the spring, which must necessarily be of considerable length, in order to afford a spring of sufficient capacity for the work. This space for the spring in the extension of the exhibit does not permit of any spring of considerable length and capacity being used without [640] making an extremely long extension in the bits. Such long extension in the bits is not only objectionable in that it weakens the parts against endwise and transverse thrusts, but also diminishes to just that extent the inward and outward inclination for any given spreading action; so that, with such long cutters, it is not possible to make the cutters tilt at any decided inward angle or at any decided outward angle; whereas, with the short cutters of the Double and Wilson type the same amount of spreading motion will produce a greater angular deviation inward or outward, tending to free the cutters more effectively from the casing in passing into collapsed position, and to expand them more effectively, or at a more favorable angle, for cutting when expanded.

(Testimony of Arthur P. Knight.)

Q. 189. As between the Double patented under-reamer, of the patent in suit, and this exhibit under discussion, the tilt or swing of the cutters, as to the extent thereof, is a matter of degree, is it not?

A. The amount of linear motion inwardly or outwardly is a matter of degree depending on the size of the spreading-bearings and the position of the fulcra. Inasmuch, however, as the amount of space in a transverse direction is limited by the size of the casing through which the tool must pass, any construction which provides for greater angular deviation or throw of the cutters, with a given amount of linear spreading, relates to more than a mere matter of degree.

Cross-examination Resumed.

(By Mr. BLAKESLEE.)

Q. 190. When the cutters of the Oil Well Supply Company, Limited, of Canada's 4½-inch under-reamer are in contracted position, their cutting edges are in position to be withheld from the inner surface of the casing in passage through the casing, are they not?

A. I do not take it so, since these cutting edges are by measurement slightly further apart than any other part of the cutters, so that the collapsing action can only be effected by [641] engagement with the casing or shoe with these cutting edges; therefore, I do not see how these cutting edges can be swung clear of the casing.

Q. 191. I notice at the lower ends of these cutters embracing the cutting edges are dressed out, so as

(Testimony of Arthur P. Knight.)

to flare out at the cutting edges themselves. Isn't it a matter of dressing the cutters so as to permit them to clear the casing and shoe, what the overall width of the cutters is at the cutting edges?

A. Yes, sir, but I take it that the dressing out of the cutting edges of the cutters, as shown in this exhibit, is necessary for producing an effective cutting edge, in view of the great length of the cutters and a very slight outward inclination when expanded. It is necessary to have considerable clearance or cutting back of the cutters above their cutting edges so as to enable the cutting edges to bite or cut the rock, so that this dressing out appears to be a necessary feature.

Q. 193. There are upthrust receiving shoulders on the body of this reamer which co-operate with the upper ends of the cutters, are there not?

A. Yes, sir.

Q. 194. And the cutters of this reamer both tilt and also move lengthwise of the body and the extension at the lower end thereof, do they not?

A. They move lengthwise and they tilt slightly.

Q. 195. And these cutters have inwardly projecting shoulders at their inner faces, do they not, such shoulders co-operating with the lower end of the extension to cause the contraction and expansion?

A. Yes, sir, to cause the expansion and permit the contraction.

Q. 196. In your answer to Question 18, where on page 1532, you say, "The spreading-bearings at the bottom of the downward extension of the body hav-



(Testimony of Arthur P. Knight.)

ing been extended laterally so as to extend clear across the extension of the body," are we to take it that you [642] refer to "Defendant's Exhibit Double Underreamer" or "Complainants' Exhibit Double Underreamer"?

A. "Defendant's Exhibit Double Underreamer," I would say, however, that while these inclined faces are extended clear across, it is only that portion of them which lies within the limits of the shoulders on the cutters which is operative as a spreading-bearing.

Q. 197. And those are the portions lying within the confines of the large openings in the sides of the body, in which openings the cutters operate; is that not correct? A. Yes, sir.

Q. 198. Now, as far as the connection, mounting, and accommodation of the play of the cutters of Oil Well Supply Company, Limited, of Canada's 41½-inch reamer are concerned, that reamer has a hollow slotted extension at the lower end, has it not?

A. Not as far as the mounting and accommodation of the cutters is concerned.

Q. 199. Are not the cutters suspended or connected by parts projecting through a slot and entering a hollow in this extension of the body of this reamer?

A. Yes, sir.

Q. 200. And in that hollow there is a spring surrounded rod, the spring acting upon the cutters to urge them into expanded position, is there not?

A. Yes, sir. This spring surrounded rod, however, is in the extension and not in the body of the



(Testimony of Arthur P. Knight.)

reamer, as I have before pointed out.

The "Complainant's Exhibit Double Under-reamer," namely, the Double Improved Type, besides presenting the mode of operation set forth in the Double Patent, has an additional feature in the V-shaped notches at the lower ends of the side walls of the slipways, which are slightly above the corresponding faces on the [643] cutters. The lateral extensions on the cutters in this exhibit also engage with the surfaces on the body beneath these V-shaped notches.

Q. 204. And you are not prepared to say, are you, that such modified formation does not produce any better bracing effect against intrust on the cutters and against any rotative tendencies which may occur with respect to the cutters?

A. In view of the fact that the lower portion of the dove-tail bearings is cut away to form this V-shaped notch, and the fact that the dovetails serve to take rotative strain, I am not prepared to say that this lateral extension of the bearings is of any advantage in resisting rotative strain. It does, however, present a wider surface for the intrust; in other words, it makes the lower inside thrust-bearing wider, but does not change in any way its mode of operation.

Q. 205. And such variation of structure may assist in the opposition to rotative tendencies of the cutters, may it not, that is, rotative tendencies such as we have discussed in your previous examination?

A. If you consider only these flat faces, and leave

(Testimony of Arthur P. Knight.)

the dovetails out of consideration, the lateral extension of these surfaces will assist in the resistance to rotative strains; but, inasmuch as the dovetails are essential features of the device in each case, and these dovetails also take part of the rotative strain, I am certainly not prepared to say that there is any advantage in this respect, taking the construction as a whole, in widening out these bearings, inasmuch as the widening of the bearings necessitates cutting away of the dovetails.

I have never operated nor have I assisted in the operation of any type of an underreamer.

Q. 207. Have you ever made a study of the actual conditions attendant upon reaming by a study of underreaming operations and the [644] tools when withdrawing from the hole?

A. I have watched the underreaming operation as far as it could be done at the surface, and have seen the tools withdrawn; but have not seen enough of them to gain actual experience as to the effective underreaming operation of the tools.

Q. 221. Tilting is defined by a raising of a body at one side or end, whereas, rocking is more properly a swinging or turning movement, such as that both ends of the body partake of such swinging movement; thus, in the North patent, the two cutter jaws, which are pivoted on the cross-head on the rod, rock on each other at points of contact which are about midway between the upper and lower ends of the jaws, so that the upper ends swing inward about as much as the lower ends swing outward, this construction

(Testimony of Arthur P. Knight.)

being necessary with the North principle of operation in which the jaws are operated by engagement of their upper ends or shanks with the upwardly tapering socket. A tilting cutter, on the other hand, I take to be one in which the inward and outward motion is substantially at the lower end, the fulcrum of the cutter being near the upper end and the collapsing and expanding forces being all applied substantially below the fulcrum.

Q. 222. Within this distinction do not the cutters of "Complainants' Exhibit Double Patent" rock upon the fulcrum shoulders, 18, between the ends of the cutters?

A. Not in the normal working operation in collapsing or expanding when passing out of or into the shoe or casing, but under the special conditions I have before referred to, when there is an inward pressure on the lower ends of the cutters concurrently with a downward drag of the cutters relatively to the body, the cutters will fulcrum on the lower inside bearings and their upper ends will move slightly outward, while their lower ends move slightly inward.

Q. 223. And this latter motion will produce rocking of the cutters, will it not? [645]

A. There is a slight rocking under these conditions, yes.

Q. 224. North shows a rocking device for the special purpose of preventing such engagement of the cutters with the casing, and it is, therefore, a strong inference that without such locking device

(Testimony of Arthur P. Knight.)

such engagement would prevent downward movement of the cutters through the casing. If this locking device were removed the spring, c, would throw the cutters out into contact with the casing, and with the proportions of the parts shown the cutters would engage with the casing at points very slightly below their fulcrum on each other, with the result that in downward pressure on the cutters, in attempting to force the tool down in the well, the cutters would act as a spreading toggle forcing the rounded outer portions you refer to tighter and tighter against the casing. I don't see how, therefore, if North's locking device were omitted, the cutters could possibly be forced down into the casing.

Q. 225. The cutting edges of the cutters, however, could not engage with the inner surface of the casing in passing the underreamer through the casing downwardly with such rounded portions of the cutters in engagement with the casing, could they?

A. No, sir; but they are so slightly below such rounded portions that the amount of inthrow or clearance in any case would be very slight.

Q. 226. And a matter of degree, I take it?

A. Yes, but this is a case where a difference in degree makes all the difference between operativeness and inoperativeness.

Q. 227. There is no definite showing in this patent, is there, that the toggle or tongs would not be a collapsing one instead of an expanding one when lowered through the casing with the lower portions of



(Testimony of Arthur P. Knight.)

the cutters engaging the casing?

A. Taking into consideration the expanding action of the spring on the cutters and the obvious gripping tendency of the cutters on the casing, due to the slight angle they make with the [646] perpendicular to the casing, I consider that the showing in the patent is definite to the effect that if the locking device were omitted, and the jaws were allowed to come into contact with the casing, the engagement of the jaws with the casing would tend to produce further expansion rather than contraction.

Q. 228. That would depend upon particular determination of shapes and sizes, would it not?

A. As I have stated, the proportion and shapes of the parts in the North drawings are such that, in my opinion, there is no question but what this pinching or sticking action will occur in lowering the device through the casing if the lock were omitted, and I would not have to make any measurements to come to that conclusion.

Q. 229. The patent does not say so in the specification, does it?

A. I think that it does in effect in that it provides special means for preventing such contact.

Q. 257. Referring, now, to "Defendant's Exhibit U. S. O'Donnell & Willard Patent." Now, in the underreamer of "Complainants' Exhibit Double Patent," the cutters slide downward on the parallel flat faces of the extension, 6, in the first part of the collapsing action without any coengagement of the



(Testimony of Arthur P. Knight.)

shoulders, 18, with the spreading surfaces, 25, is that not so, in the same manner as you say the cutters of the O'Donnell & Willard patent slide downwardly at their inner faces on the outer faces of the partition, 3, in the first part of the collapsing action?

A. Not in the same manner, no, sir. In the O'Donnell & Willard patent this sliding action carries the cutters inwardly as well as downwardly, and is the main collapsing action, so that, when it has proceeded far enough, the cutters are collapsed or approximately so; whereas, with the Double construction, this first part of the action, consisting of the sliding of the cutters [647] downwardly, so that their bearings, 18, slide on parallel faces of the downward extension, is a direct downward movement without inward drift, and is not a part of the inward collapsing movement, but is a preliminary movement for bringing the inside thrust-bearings out of engagement, so as to permit of the subsequent collapse by riding over the spreading-bearings. In saying, therefore, that the manner of operation of the two underreamers is not the same in this respect, I mean that this sliding movement in the O'Donnell & Willard is the primary or proper collapsing action, whereas, in the Double underreamer it is simply preliminary to the proper collapsing action.

Q. 258. Now, the cutters of the O'Donnell & Willard patent reamer can never arrive at their final collapsed positions shown in Figure 1 until the lower portions of the cutters rock or tilt inwardly and the

(Testimony of Arthur P. Knight.)

upper portions of the cutters rock or tilt outwardly and away from the outer faces of the partition, 3, such rocking or tilting being on fulcra at the lower portion of the partition, 3; is that not correct?

A. They certainly cannot assume the position shown in Figure 1 without rocking on the fulcra at the lower ends of the partition; but whether they would be capable of entering the casing without assuming the position shown in Figure 1, would depend on the proportions of the parts. In this connection I will say that the proportions are not the same in Figures 1 and 3. With the construction shown in Figure 3 the cutters could slide down on the inclined faces of the partition until they are nearly collapsed; and in this position the cross-piece, 8, would be directly resting on the closed bottom portion of the partition, so that the cutters could swing inwardly under the inward pressure of the shoe; such inward movement, so far as it went, would be fulcrumed on the lower portion of the partition, which would, in this case, act as a fulcrum and not as a spreading-bearing. [648]

Q. 259. You are talking now of collapsion of cutters? A. Yes, sir.

Q. 260. Now, from that part of the specification embraced within lines 117 to 122, page 2, namely, "so that when the cutters 15 15' of the jaws engage with the shoe 22' the cross-head is free to slip in the stock, thus to allow the stock to be drawn up while the jaws collapse into the position indicated in the solid lines

(Testimony of Arthur P. Knight.)

in Fig. 1," do you not gather that the positions shown in the solid lines in Figure 1 are the positions which the cutters or jaws normally assume, within the disclosure of this patent, when in collapsed positions?

A. Not necessarily, for the reason, as before stated, that proportions of the parts in Figure 1 do not agree with the Figure 3; and for the further reason that the portion of the specification you refer to states that this position is "indicated in solid lines in Fig. 1 and in dotted lines in the upper position in Fig. 3"; and in this dotted position the parts are not rocked to any material extent, at least; very slightly as compared to the position shown in Figure 1.

Q. 261. But the specification of this patent goes on further to say, lines 1 to 5 inclusive, page 3, "The ends of the cross-head have sufficient play in their sockets to allow the jaws to swing freely toward each other as the shanks withdraw from the shank sockets." Does not this language imperatively imply and disclose a tilting movement of the cutters?

A. It implies a rocking movement of the cutters, but not necessarily a tilting movement. And to judge from the showing in Figures 1 and 3 the movement, such as it is, would be a rocking movement fulcrumed on the lower end portion of the partition, as distinguished from a tilting movement fulcrumed at the upper portion of the cutters.

Q. 262. Such a rocking movement, in other words, as occurs when [649] the cutters of "Complainants' Exhibit Double Patent," and "Complainants'

(Testimony of Arthur P. Knight.)

Exhibit Double Underreamer," and "Defendant's Exhibit Double Underreamer," rock upon the shoulders, 18, as fulera; is that not correct?

A. Yes, sir, under the special conditions I have before pointed out, but not under the normal working conditions in collapsing or expanding in passing through the shoe.

Q. 263. But under any conditions in which such play upon the fulera at 18 occurs; is that not correct?

A. That is right.

Q. 264. It is not customary, in preparing drawings for patent applications, to show the parts drawn to scale as in workings drawings, is it?

A. No, sir, but different views showing different positions of a given structure are supposed to conform approximately to the same relative dimensions.

Q. 265. But even in those instances scale plotting is not precisely followed, is it? A. No, sir.

Q. 266. And with the cutters in collapsed positions shown in Figure 1 in the O'Donnell & Willard patent, it would be necessary for them similarly to rock or tilt in a direction reverse of that, bringing them into collapsed positions, and upon the same fulera, in order that they may be drawn upwardly into expanded positions; is that not correct?

A. Yes, sir.

Q. 267. Now, the cutters in this O'Donnell & Willard patent have shoulders at their outer faces which engage with the shoe in the expanding and collapsing actions, have they not?

(Testimony of Arthur P. Knight.)

A. At the outer faces of the lower portions, yes; but not at the outer faces of the shanks. [650]

Q. 268. And will you please point out to me wherein, from considerations of operativeness, any locking device, such as the parts 16, 20 and 21, or any other locking device, is required in the use of an underreamer, such as is disclosed in this O'Donnell & Willard patent, in either the collapsion or expansion of the cutters or the lowering of the reamer through the casing, or the withdrawing of the reamer through the casing, or the use of the cutters with the same in expanded positions, any more than such locking device is necessary under similar conditions in the use of the Double underreamer? And in answering this question I wish you to state what those features are of the construction if disclosed in the O'Donnell & Willard patent, which necessitates the use of such locking device, if you find that there is such absolute necessity.

A. The principal feature in the O'Donnell & Willard underreamer which leads to the necessity of a locking device, or at least would interfere with successful operation without the use of a locking device, is the fact that the shanks of the cutters extend up within a bowl which is closed all around, so that the cutters cannot come into contact with the casing, or shoe except near their lower ends. This patent states that "It is to be observed in Figures 1 and 4 that the jaws are rounded, as at 29, so that the cutting edge of the jaws are inturned when the jaws are in



(Testimony of Arthur P. Knight.)

their down-drawn position, so that the cutting edges will not touch the casing during the descent of the tool." The patentees, therefore, recognize that the bearing of the cutters on the shoe will be on this rounded portion adjacent to the cutting edges, and the clearance or inthrow of the cutting edges away from the casing is simply that which is due to the small distance between this rounded bearing of the cutter on the casing and the lower cutting edge. The feature in the Double underreamer, as disclosed [651] in the exhibits referred to, which differentiates in this respect from the O'Donnell & Willard construction, is the provision of the slots or openings in the sides and of the downward extension of the body, through which portions of the shanks extend into contact with the casing at a considerable distance above the lower cutting edges, so as to give not only an enlargement or magnification of the inthrow or clearance by engagement of this bearing face with the casing, but to proportionately, or more than proportionately, increase the inward deviation or deflection of the cutters. It may also be stated that the rounding of the outer faces of the cutters, such as required in the O'Donnell & Willard underreamer, for any clearance at all, is not adapted to provide a good cutting edge, since it brings the outer faces of the cutting edges substantially vertical if not even in-turned, whereas, they project slightly outward in order to act as an efficient cutting edge.

Q. 269. Now, please state the function of the lock-

(Testimony of Arthur P. Knight.)

ing device disclosed in this patent, including the parts 16, 20, and 21.

A. The function of this locking device is stated to be "lock the cross-head against lowering"; and, again, to lock the cross-head against drawing out of the stock on the upstroke of the stock.

Q. 275. And with the elimination of such locking device would there be the elimination of any function necessarily entering into the operation of the cutters when expanded in reaming?

A. Possibly, yes. The patentees appear to depend on this locking device in part, at least, for retaining the cutters in expanded position, so that if it was removed I would not be prepared to say that the other instrumentalities would be operative without it for this purpose.

Q. 280. Whether the action of the cutters in the O'Donnell & Willard patent reamer, and the reamer in "Complainants' Exhibit Double Patent," is a rocking or tilting action, either one of these [652] actions causes a relative separation or approach of the cutting ends of the cutters, does it not, with an oscillation of the cutters causing such relative movement?

A. Your statement is correct except that the oscillation of the cutters in the O'Donnell & Willard underreamer is not the main factor in causing the inward and outward movement.

Q. 281. But such rocking of the O'Donnell & Willard cutters around the lower end of the partition, 3, is an oscillation within that broad meaning of the

(Testimony of Arthur P. Knight.)

term "oscillation" which likewise includes the expanding and contracting swinging actions of the Double reamer cutters; is that not correct?

A. So far as this action takes place, yes.

Q. 282. Now, the inner faces of the bowl at the bottom of the body of the O'Donnell & Willard patent reamer form outside thrust-bearings, do they not, for the cutters?

A. Yes, sir, but these outside thrust-bearings do not extend down at the sides of the cutters in the manner permitted by the slotted extension of the Double underreamer.

Q. 283. Nor in the manner in which the outside thrust-bearings extend in the Swan patent reamer; is that not correct?

A. In regard to the isolated feature of the outside bearings, without relation to the co-operation of the other parts, this is correct.

Q. 284. In "Defendant's Exhibit O'Donnell & Willard Patent," there is disclosed a body provided at its lower end with a hollow slotted extension, is there not?

A. In a sense, yes; but not in the sense in which I take this term to apply to the Double underreamer.

Q. 285. Is there not disclosed in the O'Donnell & Willard patent a hollow slotted extension, mechanically equivalent to the hollow slotted extension, 6, of Complainants' Exhibit Double Patent," irrespective of the slip ways, 9, in the latter patent, and the [653] openings between the slip ways?

(Testimony of Arthur P. Knight.)

A. This would only be a portion of the hollow slotted extension in the Double patent, but even this portion of what I term the transversely extending portion of the hollow slotted extension, or the downward extension, is provided with a feature which I do not find in the O'Donnell & Willard partition, namely, the spreading-bearings at the bottom of this member adapted to engage with inwardly facing bearings or shoulders on the cutters to tilt the same outwardly by a wedging action. I do not, therefore, regard these members as equivalents.

Q. 286. The lower end of the partition, 3, in the O'Donnell & Willard patent, and the lower end of the extension, 6, in the Double patent, are both rounded off so as to bulge downwardly, are they not?

A. Yes, but the rounded lower face of the partition in the O'Donnell & Willard patent has no apparent function to perform, as it does not co-operate with any part on the cutters; and therefore is not an equivalent of the rounded lower end of the transverse portion of the downward extension in the Double underreamer, which does so co-operate.

Q. 287. But as the inner faces of the cutters, of the O'Donnell & Willard patent reamer, rock away from the flat faces, at the sides of the partition, 3, do they not verge on to this rounded lower portion of the partition, 3?

A. Not perceptibly so, to judge from Figure 1; at any rate, only a very minute portion of this rounded face is utilized as a fulcrum or rocking bearing, and it is not utilized as a wedge or spreading-bearing.

(Testimony of Arthur P. Knight.)

In the O'Donnell & Willard underreamer patent there is a spring-actuated rod having a tee at the lower end which operates in the hollow slotted partition, 3, and suspends the cutters, the cutters being disposed at the sides of the partition, 3. The outer [654] faces of the partition, 3, serves as inside thrust-bearings for the cutters. There is possibly a small portion of the up-thrust of the O'Donnell & Willard cutters taken on the body where the partition, 3, joins the body. The main portion of the up-thrust, however, being taken at the shoulders 15, 15'."

Recalled.

Cross-examination Resumed.

(By Mr. BLAKESLEE.)

Q. 293. Do not the inner surfaces of the bowl or socket of the bottom portion of the body of "Defendant's Exhibit O'Donnell & Willard Patent Underreamer" coact with the shanks of the cutters of this reamer to produce the same out-thrust bearing results and the same results under corresponding conditions with respect to the oscillation of the cutters that the upwardly and inwardly inclined dovetails, at the lower end of the body of the reamer of "Complainants' Exhibit Double Patent," produce and perform?

A. Not quite. One reason for this difference in the operation being that in the O'Donnell & Willard patent the bearings, 15 15', are provided at the lower ends of the bowl for engagement with the cutters in



(Testimony of Arthur P. Knight.)

such manner that these bearings will take considerable of the oscillating strain. In respect to the purely operative strain, however, and leaving out of consideration the other functions of the dovetails, this surface of the bowl has a similar function in this respect to the inclined dovetails of the Double patent.

Q. 294. When, however, the outer faces of the shanks of the cutters of the O'Donnell & Willard patent reamer are in engagement with the inner faces of this bowl and any lengthwise movement is imparted to the cutters, an oscillatory movement is produced upon the cutters, is it not?

A. Possibly, although not necessarily so. If the lengthwise movement you refer to is directly upward at the cutting edges of '[655]' the cutters, then there will be an oscillatory movement tending to turn the cutters so as to cause their shanks to press outwardly on the inner faces of the bowl at the lower portions of the bowl, and tending to cause the upper ends of the shanks to press inwardly on the partition.

Q. 295. And if the lower portions of the cutters are in engagement at their inner faces with the partition, 3, and the upper portions of the cutters are in engagement at their outer faces with the inner surface of the bowl, and upward movement or downward movement of the cutters is produced, will not such oscillatory downward movement of the cutters take place in the O'Donnell & Willard patent reamer?

A. Not necessarily. For example, the parts in po-

(Testimony of Arthur P. Knight.)

sition shown in Figure 3 in which the shoulders on the cutters bear against a shoe at a point somewhat above the lowermost point of bearing on the partition, any movement of the tool upward from this position will cause the cutters to slide downwardly on the partition without any oscillation such as you refer to until the point of bearing on the shoe has passed below the point of bearing on the partition. After this point is passed there will be an oscillation or rocking motion.

Q. 296. I will call your attention to the statement of my last question which presupposed not the showing in dotted lines in Figure 3, but a condition in which the outer faces of the upper ends of the cutters were in engagement with the inner surface of the bowl. Now, under such circumstances, when the longitudinal movement is imparted to the cutters, either up or down, and the inner faces of the cutters at their lower portions are in engagement with the partition, will not such oscillation take place?

A. I was not referring to the position shown in the figure in the dotted line, but to the position shown in full line in that figure, wherein the upper portion of the shanks is in contact with the bowl and the lower portion in contact with the partition. [656] Further upward movement of the shanks in this position is not possible, but further downward movement is possible, and only possible by sliding downward without oscillation, at least for the first part of the movement.

(Testimony of Arthur P. Knight.)

Q. 297. Yes, but that movement would not satisfy the conditions of my question, for, as I take it, consequent upon the initiation of such movement the outer faces of the cutters would immediately leave the inner surfaces of the bowl; is that not correct?

A. Yes, sir, if you mean to imply a condition in which the cutter shanks continue to maintain contact with the bowl at their upper portions and contact with the partition at their lower inner portions, such a condition would necessitate oscillation.

Q. 298. And in either upward or downward movement of the cutters that oscillation would occur, would it not?     A. Yes, sir.

Q. 299. Now, please refer to "Complainants' Exhibit Double Patent" and "Defendant's Exhibit O'Donnell & Willard Patent," both, and state whether or not the following language is not definitive of the disclosures of both of said patents, to wit: An underreamer having a body provided at its lower end with an extended portion having an internal hollow extension longitudinally or axially of the body, and having likewise a transverse slot cutting such hollow, a part playing vertically in the slot, a spring-actuated rod playing vertically in the hollow and extended upwardly into a hollow in the body and carrying the last named part playing in the slot; cutters suspended at either side of the said hollow slotted extended portion and connected with the part playing in the transverse slot, the lower end of said extended portion being rounded off to produce surfaces at which the cutters oscillate

(Testimony of Arthur P. Knight.)

on fulcrum intermediate of their ends and at their inner surfaces; upthrust bearings upon the body co-operating with the upper ends of the cutters, the extended portion intermediate of the cutters acting as [657] an inthrust bearing for the cutters; means outwardly of the cutters and co-operating with the shanks of the cutters to confine the cutters to zones of oscillation and longitudinal play, such latter means acting as outthrust bearings; and shoulders upon the cutters at their outer faces with which the shoe or bottom of the casing co-operates in producing and aiding the expansion and contraction of the cutters; the cutters being raised when in expanded positions and lowered when in contracted positions.

A. Your definition implies that there is a co-operation between these different elements; and, therefore, that the oscillation you refer to is produced or producible by engagement of the shoulders you refer to with the shoe. In this respect I consider the definition unfortunate as a comparison of the two reamers, as the engagement of the shoe with the Double reamer does not result in an oscillation in which the lower portion of the extension you refer to is used as a fulcrum, whereas, in the O'Donnell & Willard this action does occur to a limited extent at the lower portion of the stroke.

Q. 300. Now, if I eliminate from the statement in the question any such implication as you have raised in your last answer, is the statement in the question definitive of the structures of both the



(Testimony of Arthur P. Knight.)

O'Donnell & Willard and Double patents?

A. Eliminating any implication as to the mode of operation and principle of action of the parts, would say that these details or elements of construction as so defined may be found in each of these exhibits.

Q. 301. And as to the mode of operation and principle of action of these features in both structures, have you anything further to add to your previous testimony or may your previous testimony be considered without further additions as pertinent to such structures and the modes of operation and principles of action thereof? [658]

A. I think that I have already pointed out sufficiently the differences in the mode of operation and principles of action of these underreamers. These may, however, be summed up in a few words. The Double underreamer cutters, in co-operation with the shoe, in the collapsing operation, first ride down to bring their inside thrust-bearings out of coengagement and then ride in on the spreading-bearings so as to tilt or swing inwardly substantially at their lower ends without substantial movement at their upper ends. The O'Donnell & Willard cutters, when co-operating with the shoe in collapsing operation, initially slide obliquely inward and downward, then rock on fulcrum near their lower ends. The function of the spreading-bearings of Double patent not being found, in my opinion, in this O'Donnell & Willard underreamer. These differences have relation to the actual modes of operation of the parts you have specified. Other differences in the



(Testimony of Arthur P. Knight.)

mode of operation and principle of action depend on parts which you have not specified in your question, namely, the slotted dovetail portions in the extension through which the shanks of the cutters project into engagement with the casing for producing the effective bearing high up on the cutters while maintaining the lateral and outside bearings for the cutters at a relatively low point, thereby providing in one and the same underreamer for an enlarged collapsing action by the high outside bearing of the cutters and an effective lateral and outside support by the bearings on the downward extension at points below said outside bearings of the cutters. The O'Donnell & Willard patent does not show these dovetail slotted slipway portions.

Q. 302. Now, I take it that with these distinctions made as between the disclosures of the O'Donnell & Willard patent and the Double patent in suit, the statement of my long question, No. 299, definitive of the disclosures of both patents, is correct, is it not? [659]

A. Bearing in mind these distinctions, the statements you made are, in terms, correct.

Q. 303. Now, as between the disclosure of "Complainants' Exhibit Double Patent" and the disclosure of "Defendant's Exhibit O'Donnell & Willard Patent," do you find any difference dependent upon omission in the O'Donnell & Willard structure of features, which, I take it from your testimony, are important in the construction and operation of the Double structure, further than the inwardly pro-

(Testimony of Arthur P. Knight.)

jecting shoulders, 18, upon the inner faces of the cutters of the Double reamer, and the slipways, 9, of the Double underreamer in pairs and separated as to the slipways of each pair by a slot permitting projection of the cutters through the slots and outward thereof, of course including the dovetails upon the cutters of the Double underreamer which co-operate with the slipways?

A. If by the shoulders, 18, you intend to refer to the parts of the Double underreamer which produces spreading action, including, therefore, the portions on the extension of the body, and the shoulders on the cutters which ride on one another, to produce the collapsing and expanding action, I take it that the features you refer to are the important features of distinction.

Q. 304. Now, as to the slotted sides of the body in themselves permitting projection of the cutters beyond the periphery of the body, do you not find these in "Defendant's Exhibit U. S. Deisch Patent?"

Mr. LYON.—Objected to as irrelevant and immaterial if the question is intended to import any adding of such feature to the showing of the O'Donnell & Willard patent as it is a process of modification, rearrangement, and reorganization, of the prior art in relations and in combinations and in modes of operation not shown in fact to exist in such prior art; therefore, solely and simply a hypothetical rearrangement, reorganization, and combination, and a purely theoretical one. [660]

Mr. BLAKESLEE.—On its face the question con-

(Testimony of Arthur P. Knight.)

cerns application of the prior art to the alleged invention of the Double patent in suit.

A. Not in the sense which I have referred to the function and advantage of this construction, inasmuch as the cutters in the Deisch patent can only engage with the casing or shoe at their lower cutting edges, so that the beneficial effect of this projection of the shanks of the cutters through the slotted slipway, in enlarging the inthrow of the cutters and throwing the cutting edges clear of the casing, is not found in the Deisch patent.

Mr. BLAKESLEE.—We move to strike out the last answer of the witness as not responsive to the question and will ask him to kindly confine his answers to yes or no, particularly respecting the exact language of the question and not going further into reconsideration of the Deisch patent as to anything de hors the question.

A. Please read the question. (Last question read.) As an isolated feature, yes.

Q. 305. It is a feature involved in the operation of the reamer disclosed in the Deisch patent, is it not?

A. Yes, sir.

Q. 306. Now, likewise, in "Defendant's Exhibit Swan Patent," do you not find slots at the sides of the lower end of the body through which the cutters project outwardly of the periphery of the body, there being slipways at the sides of the slots, with which slipways the cutters co-operate in their expansion and contraction?

A. Yes, but the effect of the projection of the cut-

(Testimony of Arthur P. Knight.)

ters through the slots at the sides of the Swan underreamer is not to permit or to produce any tilting action of the cutters so as to enlarge the inward movement of their cutting edges.

Mr. BLAKESLEE.—We move again to strike out the last answer [661] of the witness as not responsive to the question, and will ask him to answer the question yes or no purely on the statement of the question itself.

(Last question read.)

A. As a definition of construction without regard to function, yes.

Q. 307. And the construction so defined in the last question enters into the operation of the reamer embodying such construction, does it not?

A. Yes, sir.

I also find in the “Defendant’s Exhibit U. S. Allen Patent” an underreamer having cutters having longitudinal movement and oscillation in their expanding and contracting actions and provided at their inner faces with inwardly projected shoulders co-operating in such expansion and contraction with an intermediate spreading member. The inwardly projecting shoulders also engage with the intermediate spreading member which serves as an intrust bearing while in operation, so far as I can make out from the specification or drawings.

Also in referring to “Defendant’s Exhibit U. S. Yorke Patent” I find an underreamer having swinging cutters having inwardly projecting shoulders at their inner faces co-operating with an interposed



(Testimony of Arthur P. Knight.)

member acting as an inner thrust-bearing when the cutters are expanded.

Q. 311. Referring now to "Defendant's Exhibit Figure 2161, Oil Well Supply Company's Catalog of 1900," as far as you can make out any of the features thereof from this cut, unaided by specific instruction as to its disclosure, do you note any feature thereof tending to render the structure so disclosed inoperative?

A. As far as I can make out from this disclosure, there does not appear to be any means for supporting the downwardly and outwardly extending members at the bottom which I take to be cutters, [662] and in default of any such means I should not consider the device as operative.

Q. 316. The inner faces of the cutters of "Complainants' Exhibit Wilson Underreamer," "Complainants' Exhibit Wilson Underreamer No. 2," between the planes of the sides of the shanks of the cutters, are devoid of inwardly projecting shoulders in the same sense that the similar parts of the cutters of "Defendant's Exhibit O'Donnell & Willard Patent" are devoid of such inwardly projecting shoulders; is that not correct?

A. At these portions, yes.

Q. 320. Now, in "Defendant's Exhibit O'Donnell & Willard Underreamer," are not the upper ends of the cutters disclosed to fit up against the body, or the partition which screws into the body, when the cutters are in expanded positions? A. No, sir.

Q. 321. Then, in this respect this O'Donnell &



(Testimony of Arthur P. Knight.)

Willard reamer does not follow the disclosure of the drawing of the O'Donnell & Willard patent; is that correct?     A. Yes, sir.

Q. 322. Now, as you have used the terms "rocking," "tilting" and "teetering," in your testimony, does not the term "oscillating" generically and broadly include in its meaning such three terms?

A. Possibly, although the term oscillating refers to a number of back and forth movements, whereas, the other terms not necessarily so; however, in this particular application it probably does.

The term "oscillating" as applied in my testimony probably has broadly the same meaning as the terms "rocking" "tilting" and "teetering."

Q. 323. Referring to Complainants' Exhibit Double Underreamer with Enlarged Slot," do you find at the lower end of the body both the keyway for the cutter holding key and the hollow as [663] separately defined spaces, the hollow providing a close working fit for the spring-actuated rod?

A. No, sir, not as separate spaces and not forming a close fit for the rod, as stated.

Q. 324. As a matter of fact, in this exhibit is not the hollow all gone and do not the spring-actuated rod and the key both move in one continuous opening?

A. I would not say that the hollow was all gone, but it is merged with the slot in a continuous opening.

Q. 325. And it is more of a hollow than it is a slot, that is, this space, is it not?

(Testimony of Arthur P. Knight.)

A. If you are referring to the entire open space, I would say that it is just as much a slot as it is a hollow.

Q. 326. But does not your own language, "one open space," better fit this opening than any other language?

A. No, sir, I think that the terms "hollow," or "hollow slot," or "hollow slotted part," are just as correct.

Q. 327. But it is just one open space, is it not?

A. Yes, sir.

Q. 328. Now, if you removed from "Complainants' Exhibit Double Patent" all of the extension, 6, being that part at the lower end of which are formed the spreading surfaces, 25, would the cutters expand and contract, and would the reamer be operative?

Mr. LYON.—The question is objected to as indefinite in that it does not appear therefrom how much counsel included in this question, in his understanding thereof, by the term "extension 6."

A. If these spreading-bearings were totally removed and eliminated from the tool, the device would not, in my opinion, be operative.

Q. 329. (By Mr. BLAKESLEE.) Do you find in "Complainants' Exhibit Wilson Underreamer," or "Complainants' Exhibit Wilson Underreamer No. 2," a mandrel or body having a downward extension, having [664] opposite parallel bearing faces, having a key-way therein, and upwardly and inwardly sloping dovetail slipways, there being

(Testimony of Arthur P. Knight.)

shoulders at the sides of such extension?

A. I do not find in these exhibits this exact construction word for word, but I do find the equivalent thereof.

Mr. BLAKESLEE.—We ask that the last portion of this answer beginning with the words “but I do find” be stricken out as not responsive to the question, and merely volunteered surplusage.

Q. 330. Do you find in either of these exhibits a spring supported rod, slips, and a key carried by the rod and carrying the slips?     A. Yes, sir.

Q. 331. Please point out the key.

A. The so-called cross or head at the bottom of the rod I consider a key; it is not a removable key, but it is a key.

Q. 332. Do you find in either of these exhibits tilt slips furnished with inward projections at their inner faces?     A. Yes, sir.

Q. 333. Do you find such inward projections to project inwardly of the planes of the inner faces of the slips?

A. There is no one plane constituting the inner face of the slips, there being one plane constituting the inner face of the shanks, another plane constituting the inner face of the cutting portions, and another plane which is beyond the last named plane and outwardly from the inner plane of the shanks.

Q. 334. Do you find such inward projections as lying inward of the planes of the inner faces of the shanks?     A. No, sir.

Q. 335. Do you find in either of said exhibits a

(Testimony of Arthur P. Knight.)

yieldingly supported rod furnished with a key seat, and a notched key in the key seat of the rod, a portion of the rod taking into the notch of the key?

A. No, sir. [665]

Q. 336. Do you find in either of said exhibits tapering dovetail slipways?

A. No, sir, not as an isolated element.

Q. 337. And not as an element so specifically designated, do you? A. No, sir.

Q. 338. Do you find in either of said exhibits a hollow slotted extension having opposite parallel bearing faces? A. Substantially, yes.

Q. 339. Exactly? A. Not absolutely.

Q. 340. And those faces referred to as not absolutely parallel are the faces, 9, disclosed in "Defendant's Exhibit Wilson Patent," are they not, those faces being upwardly divergent?

A. Yes, these are the faces and they are slightly upwardly divergent.

Recalled.

### Redirect Examination.

(By Mr. LYON.)

Q. 341. On cross-examination your attention has been directed to certain changes which appear in "Complainants' Exhibit Double Underreamer" from the device shown and described in the Double patent in suit. What difference, if any, in the mode of operation or the principle of co-operation of the bits and body portion in the collapsing or in the expansion of the bits to and from reaming position, has been effected or made by any difference in con-



(Testimony of Arthur P. Knight.)

struction of such so-called new styled Double underreamer, "Complainants' Exhibit Double Underreamer," from the Double patent construction?

A. These changes in the construction have not made any difference in the mode of operation or principle of action of the parts in collapsing and expanding. The tilt slips working on the downward extension of the body and co-operating with the bearings [666] thereon for expansion and contraction in the same manner and according to the same principles of operation in "Complainants' Exhibit Double Underreamer" and in "Complainants' Exhibit Double Patent."

Q. 342. And what change in such mode of operation, principles of action, or interrelation of the parts, in either collapsing or expansion, has been effected by the removal of the metal in "Complainants' Exhibit Double Underreamer with Enlarged Slot?"

A. There has been no change in the principle of action, the change resulting simply in decreasing the amount of the bearing surface, but the bearing surface is remaining and performing the same functions and acting in the same manner as before.

Q. 343. What difference, if any, is there in the mode of operation, or principle of action, or interrelation of parts, of the Wilson underreamer, bits and body, in either collapsing or expansion, due to the use in the Wilson underreamer of an integral key or T, as compared with the spring-actuated rod and key of the Double patent in suit and the bits and



(Testimony of Arthur P. Knight.)

body portion thereof?

A. As far as the functions of the parts in expanding and collapsing are concerned, the cross or T on the lower end of the spring-actuated rod in the Wilson underreamer, acts in the same way as the key on the spring-actuated rod of the underreamer shown in 'Complainants' Exhibit Double Patent.' In this connection I call attention to the following language in the Double patent: "The key 17 thus forming a portion on the rod 11 on which the tilt slips or bits 15 are loosely swung or pivoted," showing that in this patent it is recognized that the key while removable does, in action, form a portion of the rod.

Q. 344. On cross-examination, you have stated that in both the Double underreamer and in the Wilson underreamer, when the cutters or bits are in expanded position, they are in fixed position in the extension, and that the mode of operation of the parts is precisely [667] the same and their bearings the same; and you have referred to the fact that the bits slide longitudinally down in collapsing or moving relatively to the body. Would you say that in this motion the action of the bits of the Wilson and Double are substantially equivalent or substantially different?

Mr. BLAKESLEE.—Objected to as leading.

A. I would say that in the normal collapsing and expanding operation in passing into or out of the shoe, the action of the two bits is substantially the same, while in collapsing under the special condi-

(Testimony of Arthur P. Knight.)

tions I have before referred to, where the lower ends of the bits or cutters are pinched toward one another while a drag is exerted thereon tending to pull the same downward in the extension of the body, the action is equivalent in the two bits referred to.

Q. 345. (By Mr. LYON.) Referring now to "Defendant's Exhibit Mentry Patent," I note that, while you were discussing this patent, you did not in a general way state any conclusion as to the comparison of the mode of operation or principle of action of the parts as compared with the Double underreamer patent in suit or the Wilson underreamer. Please do so.

Mr. BLAKESLEE.—Objected as not proper re-direct examination.

A. The mode of operation of the underreamer shown in this Mentry patent is different from that of "Complainants' Exhibit Double Patent" in that the Mentry underreamer does not provide for tilting of the cutters as they expand or collapse, nor does it provide for engagement of the cutters with the casing or shoe at points considerably above the cutting edges so as to throw the cutting edges inwardly clear of the casing. The principle of action and mode of operation of this Mentry underreamer are, therefore, different from the Double underreamer.

Q. 346. (By Mr. LYON.) In your answers, either on direct or on cross-examination, with reference to "Defendant's Exhibit Kellerman [668] Patent," you have discussed more or less in detail the con-

(Testimony of Arthur P. Knight.)

struction and principles of operation of the disclosure of this exhibit. Will you state what you find in this Kellerman patent as the mode of operation and principle of coaction of the parts in collapsion and expansion as compared with the Wilson and Double underreamers?

Mr. BLAKESLEE.—Objected to as not proper redirect examination.

A. The principle of action of this Kellerman underreamer is that of a spreading wedge which is movably mounted and is forced up between tilting cutters, which are held from vertical movement relatively to the body of the tool; and the mode of operation of this underreamer requires, for the release of the cutting wedge from the cutters, the use of some special device, namely, the pipe, H, and its accompanying parts, for holding said wedge down while the tool is drawn up so as to allow the cutters to pass off of the spreading wedge, in distinction to the mode of operation of the Double underreamer in which the movement of the cutters relatively to the wedge is secured by the pressure of the shoe or casing on the outer faces of the cutters. The mode of operation and principle of action of this Kellerman underreamer are, therefore, distinct and different from the mode of operation and principle of action of the "Complainants' Exhibit Double Patent."

Q. 247. (By Mr. LYON.) On cross-examination you have stated that the locking device shown in "Defendant's Exhibit O'Donnell & Willard Pat-

(Testimony of Arthur P. Knight.)

ent'' could be eliminated without elimination of any function necessarily entering into the collapsing of the cutters or jaws, further than permitting such collapsion, or any function necessarily entering into the expansion of the cutters or jaws. Assuming that an ordinary skilled mechanic had never seen or heard of, and had no knowledge of, either the Wilson or the Double underreamers or patents and had prior to the date of Mr. Edward Double's [669] invention, placed before him the drawings and specification of said "Defendant's Exhibit O'Donnell & Willard Patent," in following the teachings of such O'Donnell & Willard Patent'' to build an underreamer, what would such O'Donnell & Willard patent present to and guide such mechanic in making?

Mr. BLAKESLEE.—Objected to as not calling for the best evidence, the patent itself being manifestly the best evidence as to the construction and interrelation and offices and functions of the parts thereof; and furthermore as being a mere hypothetical question based upon a postulate which has nothing to do whatsoever with the comparison of exhibits in this case; and furthermore as calling for a mere expression of idle opinion upon the part of the witness who has not even qualified as a practical expert in the oil-well tool art, either as to the construction or operation of oil-well tools of any kind and description. And the further objection is made that the best evidence as to the disclosure of this O'Donnell & Willard patent and as to any bearings



(Testimony of Arthur P. Knight.)

of such disclosure, is the given testimony of the present witness and other witnesses as to such disclosure. And the further objection is made that it is not proper redirect examination.

A. The disclosure in this patent is such that any skilled mechanic, constructing the underreamer in accordance with the drawings and description of the patent would, as a matter of course, include in the construction each and all of the operative features disclosed in the patent, including the locking device, and there is nothing in the disclosure which would lead him to omit such locking device or to regard such locking device as unnecessary, but rather the contrary.

Q. 348. In your answer to Question 64—which was, “Do you find anywhere in the specification of this patent (“Complainants’ Exhibit Double Patent” in suit) any reference to the shoulders, 8, or the slip ways, 9, or either of them, as being part of the [670] extension, 6?”—You referred to lines 50 to 55 of page 1 of the Double specification. Is there any other reference in this specification thereto?

A. Yes, the words in lines 92 and 94, “The slips 15 are slidably mounted on opposite sides of the downwardly-extending portion of the mandrel. . . .” In order that any part shall be mounted on another, means must be provided for retaining it in mounted relation; and these retaining means are therefore necessarily parts of the downwardly extending portion of the mandrel. These means for



(Testimony of Arthur P. Knight.)

retaining the slips in mounted relation on the downward extending portion of the mandrel are constituted by the slipways, which, therefore, according to this language, belong to the downward extension of the mandrel or body.

Q. 357. You have received or are to receive by agreement compensation for your services as expert on behalf of complainants in this suit, are you not?

A. Yes, sir.

Q. 358. Now, does not the key of "Complainants' Exhibit Double Patent," namely, the key, 17, constitute an adjunct of the spring-actuated rod within a more proper definition than were it defined as a portion of such rod?

A. This definition of the key as a portion of the rod which is given in the Double specification is, in my opinion, a proper one, considering the key in its proper function in relation to the bits or cutters; and just as proper, in my opinion, as it would be to call the key an adjunct of the rod.

Q. 359. Is this key of the Double spring-actuated rod as properly a portion thereof as the integral T of the Wilson spring-actuated rod?

A. As far as its proper function in collapsing and expanding action of the cutters is concerned, yes.

Q. 360. How about its physical participation in the construction [671] of the spring-actuated rod?

A. Its physical construction with relation to the spring-actuated rod is different.

Q. 361. And you would respect such difference,

(Testimony of Arthur P. Knight.)

would you not, in describing it specifically in a specification for application for letters patent?

A. Specifically, yes.

If you had a fixed T-Head at the lower end of the spring-actuated rod of the Double underreamer, you could not assemble the spring-actuated rod and cutters in the manner disclosed in the Double patent.

Q. 362. Now, if you had a fixed T-head on the lower end of the spring-actuated rod of the Double underreamer, you could not assemble the spring-actuated rod and cutters in the manner disclosed in the Double patent, could you?

A. No. As I have already testified, with respect to the manner of the assembling of the parts, and the way in which this key member or portion is provided on the rods, and the provision of the separable key member in the Double underreamer, as a specific function involving its separability, and in this connection the separability of the key is a feature of the Double patent, but not with respect to its working function when once the parts are assembled.

**Testimony of Robert E. Bole, Witness Called on  
Behalf of Complainants in Rebuttal.**

Mr. Bole testifies as follows:

I reside in Los Angeles, California. Occupation Oil Well Pump Manufacturer. I have been connected with the Wilson & Willard Manufacturing Company having been a machinist in their employ possibly two years ago. I worked on Wilson underreamers and am [672] familiar with them.

(Testimony of Robert E. Bole.)

Have seen Wilson underreamers in the shop of the Wilson & Willard Manufacturing Company for repairs.

Q. 8. What was the nature of the breakage or fault for repair?

A. Well, there were different kinds of repairs. The repairs on these kind of reamers were principally cutting them back or worn dovetails; and there were other reamers that were sent back to be cut back, if they could be used, and, if not, they were scrapped. They were a different kind of reamer than either of these two. Some of them did not have holes drilled in the bottom for the safety bolt. Those that did not have holes for the bottom bolt were broken off across the shank usually, just one wing broken off. Mr. E. C. Wilson told me that he would make no more Wilson underreamers without the safety bolt, because they broke at the shank in the manner described. I think it was the outward thrust on the cutters that breaks the shanks of the body.

A. 22. Well, there are, in a reamer, I should say, three different thrust-bearings; and one is up in the shank, here; another, against the dovetails on the inside, which is an outward thrust; and the other on the bearings here, which is an inward thrust. One is an inward thrust, one an outward thrust, and the other an upward thrust, and the outward thrust would be the one that would break the shank, because it would—at the same time it is an outward thrust on the cutters, it is an outward thrust on the

(Testimony of Robert E. Bole.)

prongs, and the wear on the prongs and wear on the dovetails would indicate that that was the case.

I helped to assemble the 10" O'Donnell & Willard Underreamer. I don' remember much about the making of it. The reamer was sent to Coalinga. It was sent to the American Petroleum Company at Coalinga.

Q. 26. Have you any knowledge as to any attempted use, or use, of it at the Octave Oil Company?

A. Yes. I believe they tried to run it and could not get it in the hole. [673]

Q. 27. Was there anything done with the reamer after that?

A. Well, there was something done to it. I have forgotten as to whether it was in a try-out before they shipped it up there or after they sent it back; but there was a change made in it. I think it was after it came back.

Q. 28. And, in a general way, can you explain what that change was, what it referred to?

A. Yes. They put a sort of a prong, pair of prongs, on the bottom a catch, like the end of the Wilson reamer. It seems that the cutters wouldn't open going in the casing, wouldn't allow the reamer to go in the casing, and by putting the prongs on it would retain the cutters right as it was drawn down and allow them to ride in the casing on their own shoulders.

It was tried after that on the American Petroleum Company's property. The reamer was badly dam-

(Testimony of Robert E. Bole.)

aged and I should say was beyond repair when I saw it.

Q. 33. Do you know what became of the reamer?

A. Yes. The reamer was cut up and made into a combination-socket.

Q. 34. By "combination socket," what do you mean?

A. A combination socket is a tool used to fish out of a hole lost fishing tools—or lost drilling tools. It has slips in the bottom to take hold of the lost article.

Q. 35. This underreamer that was used by Tom Crampton on the American Petroleum Company property at Coalinga was the same reamer that you assembled in the Wilson & Willard Manufacturing Company's shop?

Mr. BLAKESLEE.—Objected to as leading.

A. Yes.

Mr. LYON.—You may inquire. [674]

Cross-examination.

(By Mr. BLAKESLEE.)

Q. 36. Did you see this 10-inch reamer cut up and made into a combination socket? A. No, sir.

Q. 37. What do you know, of your own knowledge, about its being made into a combination socket?

A. I don't know. Mr. Crumpton told me that.

Mr. BLAKESLEE.—We, therefore, move to strike out all that portion of the answers of the witness relating to any cutting up of this so-called 10-inch reamer, and its alteration or transformation into a combination socket, or anything else, on the



(Testimony of Robert E. Bole.)

ground that the witness has not testified of his own knowledge, and it is merely hearsay.

Q. 38. Do you know anything personally of the use of this so-called 10-inch reamer by the American Petroleum Company?

A. That is, seeing it operated?

Q. 39. Of your own personal knowledge, outside of what somebody may have told you, or you may have heard?

A. No, just saw it lying on the platform of the American Petroleum Company's warehouse.

Q. 40. And where was that?

A. At Coalinga.

Q. 41. Did you ever see it at any place other than that platform or at the shop of the Wilson & Willard Manufacturing Company in Los Angeles?

A. Yes, saw it on the Octave Oil Company at Coalinga.

Q. 42. And where was it there?

A. I was demonstrating it to the superintendent there, Mr. Lehman.

Q. 43. How were you demonstrating it?

A. I took it apart and put it together, showing how to do it. [675]

Q. 44. You did not operate it in the hole, did you?

A. No.

Q. 45. Did you ever see it operated in the hole, or were you ever present when it was operated in the hole? A. No.

Q. 46. Outside of what people have told you, do you know anything about this 10-inch reamer, which

(Testimony of Robert E. Bole.)

you would swear to as being your own knowledge, other than you saw it assembled or assisted in assembling it in the shop of the Wilson & Willard Manufacturing Company, and saw it on the platform at Coalinga, and demonstrated it to Mr. Lehman at the American Petroleum Company property?

A. I would not know if you would call it an operation, or not, to see a reamer tested on the floor. We tested the reamer in running it in and out of casing on the floor in the shop. Outside of that there is nobody, unless you would go down in the ground, could see a reamer in operation, see it running in and out of the hole but not working.

I don't think those prongs I speak of were later added to that reamer had anything to do with the working purposes of the reamer. They were simply put there to allow the reamer to go into the hole. They were on the side ends of the partition. There was a bottom end to the partition, and those two prongs would be on the side ends. My recollection is that these prongs were riveted on to the partition. I cannot say where the Wilson underreamers without the safety bolts were shipped to but I know they did come back for repairs. They were re-machined or machined over.

I have recently been in litigation with the Wilson & Willard Manufacturing Company. Same was in regard to my account with them.

I cannot say positively where any of the Wilson underreamers which had broken prongs came from.

(Testimony of Robert E. Bole.)

I saw them in the yard of the Wilson & Willard Manufacturing Company. I never saw them anywhere else. I do not know how they were broken, but I imagine [676] they were broken by the outward pressure on the prongs. I don't know whether it was done in the well or out of the well. I would say that there were at least five but not any more. They were all at the shop of the Wilson & Willard Manufacturing Company. When Wilson reamers are re-machined they are in a condition to be used again, yes. About two years ago they commenced re-machining Wilson reamers. Reamers that had been in long service were made over by the Wilson & Willard Mfg. Company by re-machining. I have sold Wilson underreamers for the Wilson & Willard Mfg. Company, commencing to sell them in about 1908. While I was doing business with the Wilson & Willard Mfg. Company concerning my Pump I was on very close relations with Mr. Willard and Mr. Wilson. I made headquarters in their office. I had the freedom in their office. Upon settling my accounts with them very considerable friction resulted between myself and Mr. Wilson.

Q. 126. Now, with reference to this breakage of the bodies of the Wilson underreamers on what might be termed the prongs, and just about the line of the upper thrust-bearing in the process of the manufacture of the Wilson underreamer, what liability is there of breaking such Wilson reamer at this point in the manufacture?

A. I would not consider there was any liability of breaking.

(Testimony of Robert E. Bole.)

Q. 127. Did you ever know of one being broken at this point during the manufacture? A. No, sir.

By Mr. LYON.—Complainant offers in evidence certified copy of file wrapper and contents of the application upon which Defendant's Exhibit Wilson Patent #827,595, was issued; and the same is marked "Complainants' Exhibit File Wrapper Contents."

And complainant offers in evidence copy of patent #819,042 dated May 1st, 1902, to Alexander Cummings; and the same is marked [677] "Complainant's Exhibit Cummings Patent." The Cummings Patent being offered in evidence in connection with said file wrapper exhibit and being the Cummings patent referred to therein.

By Mr. BLAKESLEE.—We object to the offer of these exhibits, first, on the ground that the time for taking rebuttal proofs or offering rebuttal proofs of this nature has long since passed, the stipulation between the parties extending the time therefor being only for a period of five weeks from the 18th of January, 1913, with the exception of such extensions as have been made by agreement in connection with the taking of proofs subsequent to that period of time. And counsel for complainants some two weeks ago notified defendant that the defendant's proofs would be concluded upon the taking of two further depositions only. The further objection made is that the exhibit, insofar as pertinency to the issue, or any of the issues, is concerned, is irrelevant, immaterial and incompetent. Defendant's



(Testimony of Robert E. Bole.)

Exhibit Wilson Patent coming before the court in these proceedings for consideration only upon its face, and no issue being presented which brings before the court for consideration any of the antecedents of this Wilson patent or any of the proceedings leading to its issue; and as far as these proceedings are concerned its validity can only be considered upon its face. As to this objection, attention is called to the court that before this same court is now pending an action against the complainant corporation, the Union Tool Company, for infringement of the said Wilson letters patent, in which suit all questions concerning and affecting this Wilson patent and its validity and scope and pertinent otherwise may be considered and determined; such suit having been filed on or about February 15, 1913.

It is agreed between counsel for the parties that the proofs, on behalf of both parties, are now concluded; and the Special Examiner is requested to certify his report to the court. [678]

**Testimony of W. O. Clay, for Defendant.**

W. O. CLAY, being called as a witness on behalf of defendant, testifies as follows:

My name is W. O. Clay, and am superintendent of the Section 25 Oil Company; age, 48; resident of Taft. Have been in the oil business about twenty-five years having worked in Pennsylvania and California. Also operated in Ohio. I have used underreamers and am familiar with them.

A. 11. Well, I never used an underreamer much



(Testimony of W. O. Clay.)

until I came to California. Never had occasion to use them very much.

Q. 12. Please state why you did not have occasion to use one before.

A. Well, we never had occasion there like we did here. We always drilled an open hole.

Q. 13. For what reason was it an underreamer was not required in drilling an open hole.

A. For the simple reason we had no casing to put in. In other words we drilled an open hole. We did not put casing in as the formation stood up. The first underreamer I had any experience with was the Wilson underreamer. I think it was in 1908. As a rule the Wilson reamer has given good satisfaction.

Have also used the Double. I have also had good success with the Double. When reamers go into the hole you are bound to have trouble with any of them. I have lost the lower part of a Double underreamer in the hole.

A. 30. It was caused by the men on the well on which the loss occurred. It was not set up correctly and it unscrewed.

Q. 31. Where did the unscrewing occur?

A. Where did it occur on it, do you mean?

Q. 32. Where did the unscrewing occur; as between what parts?

A. Well, the lower part, where it is made in two parts. The men neglected to set it up right.

Q. 33. How many parts has the Wilson underreamer?

(Testimony of W. O. Clay.)

A. Well, the [679] body is made in one solid part.

The lower half of the Double underreamer body was left in the hole. We did not get it out.

We are using Wilson underreamers on our lease now. Are using no Doubles at the present time.

The only other break, accident or faulty operation with either a Double or a Wilson reamer I can tell of was I lost cutters out of the Wilson underreamer up to the time they made an improvement on them. It occurred by the breakage of the tee-bolt inside of the reamer, letting the lugs or cutters go. That was about three years ago.

To "jump" a pin, that is to break the tool joints or to lose or unscrew them, generally causes a bad fishing job. Fishing jobs are frequent in oil well drilling. The less joints you have on the tools the less danger there is in running them.

**Testimony of David Kinsey, Called on Behalf of Defendant.**

Mr. Kinsey testified as follows:

My age is 38; a resident of Maricopa, superintendent of oil company, name, David Kinsey. Have been in the Oil Development business since 1896. Have used underreamers and am acquainted with them, the different makes. I have used Austrian underreamers, Double reamers and the Wilson reamers. Used the Austrian reamer in 1902 to 1904 or 5.

Q. 10. Please tell us the extent of your experience with the Austrian reamer.

(Testimony of David Kinsey.)

A. Well, outside of having a great deal of trouble to get a hard formation reamed, we used them right along. We had trouble to get the pipe through sometimes after using them and it would take a great deal of time usually to ream a shell or hard formation.

Q. 11. Can you tell approximately how many wells you have reamed with an Austrian reamer?

A. No, I could not.

Q. 12. Can you state roughly?

A. No, I could not say. We drilled that time about 17 or 18 wells. We used it on some and on some [680] we would not use it.

The Austrian underreamer I refer to is like that shown in Oil Well Supply Company's Catalogue under date of 1900, page 82.

I used the Double reamer in about 1908. Have used about half a dozen of them altogether. I had not used the Wilson underreamer previous to that time. Have used eight or ten. Am using Wilson reamers at present. Have no other make at present. I have five Wilson underreamers now.

Q. 27. Please tell us about your experience in using the Double underreamer.

A. Well, I have always had trouble with the Double underreamer to get it to go down to the bottom of the hole and down through the casing. I broke one set of lugs of the Double; that is about all I have ever broken on the Double underreamer.

Q. 28. What became of the lugs?

A. Lost in the hole.

(Testimony of David Kinsey.)

Q. 29. Do you remember what the extent of the breakage was?

A. Simply broke across the lug, about half way up the lug or about the slot where the lug comes.

Q. 32. Please tell us now about your experience in using the Wilson underreamer.

A. I never had any special experience with them. They always worked pretty well for me.

A. 39. I don't think there is much of a comparison but if I had the two laid out before me I would pick out the Wilson every time. As long as I could get a Wilson I would not take a Double.

The last Austrian underreamer I used was on the property of the Sunset Diamond Oil Company. I was driller on the well at the time. The other driller was Waltman, the famous Windy Waltman.

We used the Wilson reamer because it looked like a small improvement over the Austrian reamer.

Q. 65. What do you mean by a small improvement? Well it looked [681] like a better reamer than the Austrian and looked to be an improvement.

Q. 66. In what respect?

A. The size of the lugs, their cutters are a great deal larger so that it would cut a larger hole. It would go through and cut a hole large enough for the pipe to go through.

Q. 67. No other reason why you abandoned the use of the Austrian and went to the use of the Wilson reamer is there?

A. We got to buying our own reamers, the others we used to rent.

(Testimony of David Kinsey.)

Q. 68. Why did you buy the Wilson?

A. The Wilson looked good.

Q. 75. I suppose you have lost Wilson cutters?

A. I never have, no, sir.

In running the Austrian underreamers we used a stub on the bottom of it. This stub was about two and one-half feet long. I would not consider the loss of cutters of any importance. I have only used two Double reamers. I broke two cutters.

I have known of a great many breakages of Double underreamers. I think I have heard of one Wilson cutter being lost in the hole. That was on the El Comino Oil Company's property. It was caused by the bolt something like that. I have bent the safety bolt in the Wilson underreamers but I could see no difference that it makes in the operation of the reamer. I think when the bolt bent I have run them until I could get a new bolt.

Q. 109. What do you mean by being bent in your last answer?

A. Well, I have brought them out of the hole several times when they seemed to have run into a boulder and got bent. Probably in a ten inch hole they would be bent by  $\frac{1}{2}$  inch to  $\frac{3}{4}$  to an inch. Then we would have to bring it out of the hole and in that case we would take it out.

Q. 110. And what was the effect of the bending of that bolt so far as the body of the reamer or the cutters were concerned?

A. It made no difference as I could see, none whatever. [682]



(Testimony of David Kinsey.)

Q. 111. None at all. A. No, sir.

Q. 119. Did you have the same trouble with all the Double reamers?

A. I did, we had to tie them down to get them down into the hole.

Q. 120. Then if I understand you correctly you never got any satisfaction out of the Double reamers.

A. About the first time [683] you run it in it runs in nice and after that it don't run in to suit you.

Q. 121. To suit you. A. To suit me, no.

Q. 122. I suppose you would say you would prefer an Austrian reamer to the Double reamer?

A. Well, not exactly, no.

Q. 123. Why not?

A. I could put up with a Double reamer if it worked all right. They do better work.

Q. 124. In what respect do they do better work.

A. Well, their cutters are placed in better position.

Q. 125. In better position, in what respect?

A. Well, they do better work so that you could ream close to the bottom and closer than you could with the Austrian.

Q. 126. Do you have any trouble in pulling any of these Double reamers out? A. Once in a while.

Q. 127. To what is that due?

A. I don't know it is hard to tell. I never had any trouble in pulling the Wilson out.

Q. 138. You say that with these Austrian ream-

(Testimony of David Kinsey.)

ers you had a great deal of trouble to cut through a hard formation and to get the pipe through, will you please explain to use in detail just what you mean by that answer?

A. We always attributed it to the idea of the narrowness of the dogs or cutters. It was hard to get them to cut a larger hole through a hard formation, consequently the pipe would not follow.

Q. 139. Did you have any trouble with the Austrian reamer key-seating.

A. We did. We thought we did, we thought that was where the trouble was.

Q. 140. I suppose you mean by "key-seating" that the two dogs or cutters with the Austrian reamer cut spiral grooves into the formation instead of cutting a round hole. A. Yes, sir.

Q. 141. I don't suppose you ever broke any of the cutters of the Austrian reamer did you?

A. I don't remember of having broken any.

Q. 142. What size Austrian reamer did you use.

A.  $7\frac{5}{8}$  and [684]  $5\frac{5}{8}$ .

Q. 143. You never used a larger Austrian reamer than  $7\frac{5}{8}$ ?

A. Yes, I think I had a  $9\frac{5}{8}$ . Pretty sure I did. The first wire lines I used from 1904 to 5 or 6.

Q. 157. What depths of holes were those wells that you drilled prior to 1908.

A. 1200 feet probably 1250 feet, was about the depth, from 400 feet to 1250 feet.

Q. 158. And what was the general range of depths of the wells that you drilled with the

(Testimony of David Kinsey.)

Double and Wilson reamers?

A. From the surface to 4,800 feet.

I prefer the oil Well Tool which has the least number of joints in it.

**Testimony of John A. Bennett, Called as a Witness  
on Behalf of Defendant.**

Mr. Bennett testifies as follows:

My name is John Alexander Bennett; resident of Bakersfield; occupation, driller; age, 38 years old. Have been in the oil business probably twenty-three years. My first experience was in Canada. I was born in Canada. That was near Petrolia. In the province of Ontario. I operated in Sumatra, the Island of Sumatra. Was there two years. I next went to Borneo. Was there two and half years. From there I went to Bakersfield, in Kern County. I have been in British Burma, since having first gone to Bakersfield. That was in 1903 to 1906. Since that time I have been head driller for the Sunset Security Oil Company. That is the property we are now on. I have used underreamers and am familiar with them.

Q. 19. During your experience in the oil well industry have you ever had occasion to use what are termed underreamers?     A. I have.

Q. 20. When did you first use an underreamer?

A. In 1896.

Q. 21. And that was where?

A. On the Island of Sumatra.

Q. 22. And what date was that?

(Testimony of John A. Bennett.)

A. I don't recollect exactly, make it 1896 or 1897.

[685]

Q. 23. Had you ever seen an underreamer before that? A. Yes, sir. I won't say absolutely.

Q. 24. When to your best recollection do you first remember of seeing an underreamer?

A. Well, I am positive it was in Sumatra.

Mr. LYON.—Objected to as irrelevant, incompetent and immaterial. The use of a tool in Sumatra being absolutely incompetent, irrelevant and immaterial, in these proceedings.

Mr. BLAKESLEE.—We are just trying to trace the experience of this witness with oil well apparatus, including underreamers, and for that purpose we believe that the question is material and proper.

A. Well, I am pretty sure it was in Sumatra.

Q. 25. And what kind of a reamer was that?

A. Why, I think it was known as the Australian, it is not the Austrian, it is a decidedly different underreamer.

Q. 26. Can you tell us briefly the construction of this reamer?

Mr. LYON.—Same objection and particularly as it is not admissible under the pleadings and is irrelevant and immaterial being a tool used not within the United States of America or the Territories thereof and on the ground that no such defense is pleaded.

(Read the question.) A. Well, the underreamer was made with two lugs similar in shape to the

(Testimony of John A. Bennett.)

Wilson underreamer, excepting that the lugs—on the top end of either lug there was a wing came out with a hole bored through it and when it went into the body of the underreamer it lapped this way and then a pin went through this hole slit in the body and went through these two holes of the lugs to hold the same in place, then a spring went up through a hole bored in the bottom of the body of reamer and came in contact with the bottom of the wings of the lugs. The spring was held in place by a block screwed into the bottom of body of reamer.

Q. 27. What caused the movement of the cutters in this reamer?

Mr. LYON.—Same objection. [686]

A. What to expand or contract?

Q. 28. Yes?

Mr. LYON.—Same objection.

A. There was a spring.

Q. 29. What connection did the cutters have in regard to the spring in the bottom of the reamer?

Mr. LYON.—Same objection.

A. The spring inserted in the bottom of the body came up against the bottom of the cutters or lugs and the spring was held in place by a block screwed into the bottom of body of underreamer.

Q. 30. Well, let me ask it this way. Was there any part of this underreamer which acted with the cutters aside from the spring you spoke of as causing the expansion or contraction?

Mr. LYON.—Objected to as leading and upon the other ground stated in the objection to the testi-



(Testimony of John A. Bennett.)

mony in regard to this reamer which objection will be understood as reported to all subsequent questions asked this witness without specifically hereinafter repeating.

A. Why the bottom of the bit.

Q. 31. Do you remember where you got this particular underreamer?

Mr. LYON.—Same objection.

A. It was made by—I don't remember whether it was the Oil Well Supply or not. It was made by a firm known as McKenzie and Joyce, I think the firm was known as the Oil Well Supply. I am not really positive of that though.

Q. 32. For the purpose of identification only I show you a catalog of Oil Well Supply Company under date of 1900 and call your attention to the showing on page 117 thereof and ask you whether you find on this page anything which in any manner bears a relation to this first underreamer used by you about which you have testified.

Mr. LYON.—Objected to as leading and tending to educate the witness for his further testimony in this case and being incompetent [687] and not the best evidence.

(Witness points to Fig 2161 on page 17 of said catalog.)

Q. 33. Do you know what became of that first reamer? A. What became of it?

Q. 34. Yes.

A. I presume it is in Sumatra yet. As far as I know I left it there.

(Testimony of John A. Bennett.)

Q. 35. And when was it again that you left Sumatra after using it?

A. I think I left Sumatra in 1908, if my memory serves me correctly. Oh, I beg your pardon; I mean 1898.

Q. 36. Please tell us anything further that you can about your use of this underreamer in Sumatra?

A. Well, no more than has been stated between us. It served the purpose.

Q. 37. In the hole in which you used this reamer, did you use casing?

Mr. LYON.—Objected to as leading.

A. We did.

Q. 38. Please tell us what if any the use of this reamer in Sumatra had with respect to the lowering of the casing?

A. When we encountered formation that was so hard that the pipe would not go down of its own way we used this underreamer to enlarge the hole through this hard formation in order to allow the pipe to be lowered. The effect was always satisfactory.

I have used Austrian underreamers, Swan underreamers, Double underreamers, and Wilson underreamers. At present I am using Wilson underreamers.

Q. 53. Now, referring again to this particular type of reamer that you say you used in Sumatra in 1898, did you ever see any more of such type of reamer?

(Testimony of John A. Bennett.)

Mr. LYON.—Objected to as leading.

A. Yes.

Q. 54. And when and where?

A. I had one in the Midway that I brought from Canada.

Q. 55. And when was this?

A. About 1900, the year 1900. [688]

Q. 56. What did you do with it if anything?

Mr. LYON.—Objected to as being inadmissible under the pleadings; no such defense being pleaded.

A. I did not do anything with it; I brought it in case I would have occasion to use.

Q. 57. Can you tell us anything as to its subsequent history? A. This particular reamer?

Q. 58. Yes.

A. I had it at the time myself.

Q. 59. And what became of it after you brought it to the Midway Field? A. I don't know.

That reamer was known sometimes by the name of the Australian reamers. I do not believe that the Australian reamer or the Canadian would be as strong as the Wilson reamer. The Wilson cutters are stronger and have more stock in them.

Q. 72. Well, if you were to select this reamer you call the Australian reamer or the Double reamer you have referred to, which would you prefer?

A. I don't think there would be much choice as far as I am personally concerned.

I have used several Double underreamers, I don't know how many. I have used Double reamers in probably twenty-five holes.

(Testimony of John A. Bennett.)

Q. 84. Now, as to these Australian underreamers. Did you ever see one of them made?

Mr. LYON.—We object to that as leading and as irrelevant and immaterial.

A. I have.

Q. 85. And where was this? A. In Canada.

Q. 86. And when?

Mr. LYON.—Same objection.

A. About 1900, the last one I saw made.

Q. 87. What part of Canada?

Mr. LYON.—Same objection.

A. Petrolia, Ontario. [689]

Q. 88. Did you ever see more than one of them made?

Mr. LYON.—Same objection, leading and the other grounds stated.

A. I have.

Q. 89. Approximately how many?

Mr. LYON.—Same objection.

A. I have seen several in the course of construction. I have never watched them to know that they were completed but have been in the shops or shop at different times and seen several in the course of construction.

Q. 90. And what was the name of the shop if you can remember?

Mr. LYON.—Same objection.

A. The shop was known by the firm of McKenzie & Joyce.

Q. 91. Can you state of your personal knowledge what was done with any of these reamers that you

(Testimony of John A. Bennett.)

say you saw in progress of manufacture at this shop?

Mr. LYON.—Same objection.

A. They were shipped to foreign countries, Australia, Sumatra, Borneo, different countries.

Q. 92. Did you ever see any of them used aside from those that you have heretofore testified about as using in Sumatra and bringing to California?

Mr. LYON.—Same objection and as leading.

A. No, I have not, you mean any different places?

Q. 93. At any place?

Mr. LYON.—Same objection.

A. I have seen other drillers use them in places I have been and places I have been working.

Q. 94. In how many of the places.

Mr. LYON.—Same objection.

A. Borneo, Sumatra and Java.

Q. 96. I think you have referred to a Swan underreamer? A. Yes.

Q. 97. Did you ever see one of these used? [690]

Mr. LYON.—Same objection.

A. I have.

Q. 98. Did you ever use one yourself?

Mr. LYON.—Same objection.

A. Not personally except in capacity of superintendent.

Q. 99. Where did you first see a Swan used?

A. In Burma.

Q. 100. Can you tell us anything about the work done by this Swan underreamer?

Mr. LYON.—Same objection.



(Testimony of John A. Bennett.)

A. We found the Swan underreamer more efficient than the Austrian underreamer, except that it was attended with a great deal of difficulty in extricating it from the hole after the underreaming had been done.

Q. 103. What can you tell us of your experience with a Double underreamer?

A. The Double underreamer was not satisfactory in trying to enter a hard formation that we have encountered in the well of the Sunset Security Oil Company. We were not able to accomplish the work, owing to the lugs or cutters constantly breaking.

Q. 104. Can you state in what part of the lugs or cutters these breakages occurred?

A. They usually broke at what is known to us as the eye. Also breaking down at what we term the heel.

Q. 105. What service does this eye perform that you refer to?

A. The eye is the place where the key is inserted in order to suspend the cutters on the rod of reamer.

Q. 106. To what cause do you attribute this breakage of the Double cutters at this point?

A. To the lack of strength in the cutters, materially weak in their construction.

Q. 107. Can you produce any such cutters or parts thereof?

A. I can. (Witness produces seven pieces of metal.)

Q. 108. Referring now to the five short pieces of

(Testimony of John A. Bennett.)

metal, please [691] tell us about them with respect to the breakages you have referred to?

A. The five pieces of metal referred to are the upper ends of the Double cutters that broke in the process and effort of trying to underream through a hard shell in the Sunset Security Oil Company's well.

Q. 109. Can you state approximately when these breakages occurred?

A. Well, lets see, it was within the last year, the last twelve months.

Q. 110. Do you know what became of the remaining portion of these broken cutters?

A. Most of them were lost in the hole.

Q. 111. During that period of time have you or have you not had further breakages of this nature?

A. I have.

Q. 112. Can you state roughly how many?

A. No. I could not say exactly how many I have had, I have had quite a number. I have not kept any definite track of them.

Q. 113. Have you used Wilson reamers during that time?

A. The latter part of the twelve months I have.

Q. 114. Have you had any breakages in Wilson cutters during that period?

A. No breakages, excepting, of course, that a crack is not a break.

Q. 115. Well, I will ask you if you have had any cracks in Wilson cutters during that period?

A. I have had.

(Testimony of John A. Bennett.)

Q. 116. How many for instance? A. One.

Q. 117. And in what portion of the cutter?

A. In the bottom end.

Q. 118. And am I correct in designating that as being in the cutting edge portion of the cutter?

A. Yes, sir.

Q. 119. Have you ever had any cracks during that period of time in the cutting edge portion of the Double cutters? A. I have.

Q. 120. Roughly how many cases?

A. Many cases that I remember of.

(The five pieces of metal just discussed by the witness are offered in evidence in group as "Defendant's Exhibit, Upper Ends of Broken Reamer Cutters, Produced by Witness Bennett.") [692]

Q. 121. Please now refer to the other two larger pieces of metal and tell us about them with respect to breakage?

A. Well, the first one is broken in the same manner as the five pieces just referred to expecting that it didn't break entirely off. Just required a slight tap with a hammer after it was withdrawn from the hole to break it off.

Q. 122. When did this breakage occur?

A. During the time I was using the Double under-reamer.

Q. 123. At what place?

A. Place referred to, Sunset Security's Well.

Q. 124. What part of the cutter is this?

A. That's the lower end of the cutter.

(Defendant offers in evidence the larger pieces of

(Testimony of John A. Bennett.)

metal just discussed as "Defendant's Exhibit, Broken Off Lower End of Double Reamer Cutter, Produced by Witness Bennett.")

Q. 125. Please tell us about the remaining part.

A. The remaining piece is simply cracked. We noticed it in time to prevent any further risk being taken.

Q. 126. When and where did this crack take place?

A. The same place as the other exhibits. The time was during the use of the Double underreamer.

(This last piece of metal is offered in evidence as "Defendant's Exhibit, Cracked Double Reamer Cutter, Produced by Witness Bennett.")

Q. 127. Please tell us further if you have anything to say about your experience in using the Double cutters.

A. Well, our experience in using the Double cutters has not been satisfactory, so much so, that I discontinued their use as being dangerous to the construction of the well.

Q. 128. Can you tell us any other reasons that led you to such discontinuance of the use of the Double reamer?

A. I had no reason whatever excepting in the interest of the well that I was and am drilling. [693]

Q. 129. Well, what I mean more particularly was reason pertaining to the material itself?

A. Well, in the Double there is joints in the middle which I consider a hazard. While I have never lost the lower portion of the reamer, I have often found it to be loose and could easily have been lost if we

(Testimony of John A. Bennett.)

had have run it a greater length of time in the hole. Also in the Double reamer cutter there is so much material cut away in order to cause the lugs to expand, or cutters I had better call it, that it is materially weak. Such I found not to be the case with the Wilson cutters and naturally wanting strength in the lugs in order to obviate these breakages I chose the Wilson underreamer as being more materially perfect. That is all.

Q. 130. Have you anything to state with respect to the Wilson or Double reamers concerning the ease or readiness with which the casing follows the reaming operation?

Mr. LYON.—Objected to as leading.

A. I don't think that the casing will follow one reamer any better than the other, not if the reaming has been done properly and the hole is large enough. My trouble with reamers has been in getting one that is materially strong enough to do the work. After the work is done the pipe will always go. The trouble is and has been in getting a reamer to do the work. That's all, I guess.

Q. 131. When you do your next reaming operation what reamer do you propose to use?

A. The Wilson.

Q. 132. As to any tools specified as oil well tools intended to do the same class of work, one of which had more joints than the other, would you make a preference?

A. Every joint is a hazard, the less joints the less hazard.



(Testimony of John A. Bennett.)

I went to Sumatra in about 1896.

The well we are now working on in the Sunset Security is about 4,000 feet deep. We are entering 6 $\frac{1}{4}$ " casing. I have broken one of the dovetails of the Wilson reamer and have also broken the Tee Rod.  
[694]

Q. 185. What happened when you broke that rod?

A. The cutters dropped down on the bottom of the body.

Q. 186. Never lost a Wilson cutter in the hole, have you? A. Never.

Q. 187. Have you ever known of Wilson cutters being lost in the well hole?

A. Not positively.

Q. 188. You have heard of such things, have you not?

A. I have heard of them, yes, but not with the improved underreamer.

Q. 195. Can you tell me how many times the cutters of "Defendant's Exhibit, Upper Ends of Broken Double Reamer Cutters Produced by Witness Bennett," have been redressed respectively?

A. Some of them have not been run into the hole but once, having broken in the first attempt to use them. Others have been dressed and used several times.

Q. 196. Can you tell us how many times?

A. Several.

Q. 197. What do you mean by several, a dozen times?

A. More than one or two times, I don't mean twelve

(Testimony of John A. Bennett.)

times. I would say readily three or four times.

Q. 198. Not to exceed four times?

A. I would not go on record as saying any one of them has been dressed more than four times, I know that some of them has been more than others.

Q. 199. Did you ever have any other breakage in any manner whatever of the Wilson underreamer other than the breakage of the dovetails and the breakage of the spring actuated rod, if so state specifically what such breakage was?

A. No, I don't think I have, not that I can remember just now.

Q. 200. Did you ever use the Wilson reamer without the bottom bolt in the lower end of the reamer?

A. No, I have not.

Q. 201. You have found, have you not, that this Sunset Security Well that you are now drilling upon here has been an exceedingly difficult one to drill, have you not? A. In some respects. [695]

Q. 202. In what respects?

A. Cavey ground, cavey formation, particularly.

Q. 203. In any other respects?

A. No, excepting, of course, in the underreaming.

Q. 204. What in the underreaming?

A. In getting an underreamer that was sufficiently strong enough to do the work.

Q. 205. Comparing other underreaming jobs that you have done with the underreaming in this Sunset Security Well, it has been much more difficult, has it not?

A. More difficult than some that I have done but

(Testimony of John A. Bennett.)

I have had other wells that were pretty difficult to underream.

Q. 230. Mr. Bennett, will you now describe in full the construction and mode of operation of the underreamer relative to the parts of this underreamer you say you used in Sumatra?

A. On the Australian underreamer the cutters go into the body with the wing on the top of each cutter through which a hole is drilled and a bolt inserted through a slot on the side of the body. The spring is inserted in the bottom of the body and comes up under and against the wings of the cutters and is held in place by a block screwed into the bottom of the body. Is that sufficient?

Q. 231. It is sufficient if that is the best description you can give, I am asking you to describe as fully as you can and to be absolutely fair to you I will state that I want such description just as full as you can give it in order to test your testimony.

A. The expansion of the lugs in the Australian underreamer is accomplished in much the same manner as it is with the Double. Well, I don't think that I care to attempt to describe it any further.

Q. 232. What size reamer was this that you used in Sumatra?

A. I am not sure I think it was an 8 inch.

Q. 233. And what was the name of the company you were working for down in Sumatra at that time.

A. Why, it was not a company, it [696] was headed by a man by the name of Boisservain of Amsterdam, Holland.

(Testimony of John A. Bennett.)

Q. 234. How long were the cutters or bits on this reamer? A. On the Australian reamer?

Q. 235. The one that you used in Sumatra?

A. Oh, I should judge them to be ten inches, maybe twelve inches in length. Cannot say positively about that.

Q. 236. Was there any inter-engaging dovetails on the body and on the bits like in the Double reamer?

A. No, they just went into the slot on the side and a key went through. There was nothing in the way of dovetails, if my memory serves me. From 1903 to 1906, while I was in the Burma Fields, there were no Double reamers used there that I know of?

Q. 288. About how long were you employed upon this well in Sumatra?

A. I don't remember exactly how long I was on the wells. I drilled eleven wells during the time I stayed there. I think it was eleven.

Q. 289. As near as you can remember how long were you there?

A. The first well, it took me about a month, I think I was a little longer on that first well.

(Interrupting.) Q. 290. How long did it take you on the 11 wells?

A. I think it was about 19 months. I beg your pardon, I mean I was 19 months actually employed in the drilling and the constructing of the 11 wells.

Q. 291. And what were the depths of these wells?

A. Varying depths, 200 feet to 1,100 feet.

Q. 292. From 200 feet to 1,100 feet? A. Yes.

Q. 293. And what size casing did you use?

(Testimony of John A. Bennett.)

A. I think it was 9, 8, 7 and 6 inserted pipe.

Q. 294. How far down did you carry the nine-inch casing?

A. I can't remember exactly the different wells, we carried the pipe to different depths.

Q. 295. Was there much underreaming required there in these [697] Sumatra wells?

A. Some of them, yes, required considerable.

In dressing underreamer cutters we do not affect the cutter. We do nothing with the shank of the cutters when we dress them up to size.

The underreamers which we brought from Petrolia to Bakersfield in 1900 were taken direct from Bakersfield on their arrival immediately to the Midway field. They were taken from the cars in Bakersfield to the Midway Field. While we had that reamer at that well there was scarcely a day that visitors did not stop. This reamer was alongside the road. Possibly 50 feet from the road. I have known of people stopping and looking at that reamer. There was another well being drilled about a half mile from our well. The men who were working on that well besides myself were John S. Stokes, J. L. Bruce, E. C. Brookes, and myself, that is all. That well was located on Section 25-32-23. I purchased that reamer myself in Canada of McKenzie & Joyce.

**Testimony of James L. Bruce, for Defendant.**

Testimony of JAMES L. BRUCE, who testifies as follows:

My age is 36; manager of Southern Garage; resi-



(Testimony of James L. Bruce.)

dence, Bakersfield, California. I was previously superintendent of the Associated Oil Company at Oil Center. I have been in the oil business since I was 16 years old. I have been in every department of it and am familiar with underreamers. Up to twelve years ago I was in the Canadian Fields at Petrolia, Ontario, Canada, in which fields I was born. The first adjustable underreamer I used was in the Midway Field. I was working out on the section 25 Hill. By an adjustable underreamer I mean one with an expansion, an underreamer where they expand after going out of the casing or expand in the casing or expand underreaming below the casing. We called that reamer an Australian underreamer. As I remember it came from Petrolia, Ontario with other [698] tools which were brought from that place. Those tools were brought to California by Bennett and Stokes. They drilled that well about 700 feet and encountered a large body of water sand and abandoned it for a water well. The property was known as the Sunset Coast Oil Company. The tools were removed to that property some time between 1901 and 1902. It was in 1901 or 2. I remember of running that reamer into the hole and then remember we did not have very good success with it. We were using casing.

Q. 37. Please state to the extent of your recollection what the construction and arrangement of the parts of that Australian underreamer was?

A. Why, as near as I can remember it was an expansion reamer, two lugs expanding over the bot-

(Testimony of James L. Bruce.)

tom shank of the reamer which was tapered in order to get it down in the hole. The two lugs were tied together with a rope and after the tools were set on the bottom the rope was broke and the lugs expanded in order to ream the hole large enough to get the casing down and give it clearance.

Q. 38. Do you remember anything further with regard to the arrangement of the lugs?

A. Why, I remember the lugs slipped in past each other and a pin went through them in some manner I don't just recollect, below the lugs.

Q. 39. Below what part of the lugs?

A. Well, I can't say, I don't just remember just how it was constructed.

Q. 40. Do you remember anything about the shape of these lugs?

A. Why, I haven't a very vivid recollection of just exactly how they were but the offset on them was something similar to the Wilson or Double under-reamer but they were not exactly the same shape.

Q. 41. Do you remember how these lugs extended with respect, we will say, to the up and down direction in the hole?

A. How they extended? I don't understand how you mean.

Q. 42. Well, how they hung, in what direction they extended?

A. Well, when the rope was broke, of course, they just slipped out [699] a certain distance farther than they were when they were tied together with the rope, according to the size of the casing used

(Testimony of James L. Bruce.)

in the hole and the lower ends were larger than the size of the shoe.

Q. 43. Where were the other ends of the lugs with respect to the working or cutting ends?

A. Why, they were fastened together with a pin, overlapping each other, with the shank of the reamer and the slot in the side of the reamer, which worked up and down as you pulled the lugs up and down.

Q. 44. As to these ends that were connected with a pin, in what direction were they that did the cutting? A. I don't just get what you mean.

Q. 45. In what direction did the lugs lie between their ends? A. At the top.

Q. 46. Was there a top end do I understand?

A. There was a top end of the lugs where the bolt went through them.

Q. 47. Well, what would you call the cutting end?

A. Well, the cutting ends *would the* bottom ends.

Q. 48. Well, calling one end the top end *what you* call the cutting end?

A. Well, the other end the cutting end.

Q. 49. Well, in reference to top or bottom or side what would you call the cutting end?

A. Call them lugs.

Q. 50. Well, you said there was a top and there was a bottom end so which end would you call the cutting end?

A. The end that did the cutting. There is a spreading bearing, as I would call it, at the top of these lugs that allows them to spread and do the cutting.

(Testimony of James L. Bruce.)

Q. 51. And these spreading bearings that you speak of as being used were located in what respect to the lugs?

A. Well, there was an offset in the lugs which corresponded with the top and bottom of the shanks.

Q. 52. And in what part of the lugs was that offset? A. Probably [700] about the center.

Q. 53. And where did the spreading bearing lie with respect to this in order to offset the sides?

A. Well, at the offset on the side, in order to pull the lug in and get them down through the casing we had to pull over the taper of the shank.

Q. 54. Well, where was that taper in the shank located? A. On the bottom of the reamer.

Q. 55. And how were the lugs located with respect to the bottom of the reamer?

A. Well, when your lugs were out going through your casing ready to cut you would be on the full part of your reamer and when it was pulling down going through your casing the lugs would pull down going through the casing.

Q. 56. Can you tell us anything further as to the use of this Australian underreamer?

A. No, I just remember that we run it and did not consider it satisfactory. That's about all I remember.

Q. 57. Do you remember who put it in the hole?

A. Well, I don't remember but I believe Stokes put it in the hole himself.

Q. 58. Were you present at the time?

A. I was present when it was put in.

(Testimony of James L. Bruce.)

Q. 59. Did it come out of the hole?      A. Oh, yes.

Q. 60. Were you present then?

A. I expect I was when we put it in, I can't remember though.

Q. 65. You said it was not satisfactory, can you tell us the reasons?

A. Well, as I remember it did not operate or ream the hole satisfactory. That is as near as I can remember, it was not heavy enough. It was not the kind of formation that you would use to underream in.

Q. 77. In a general way please compare the Australian underreamer you used with the Wilson or Double, either one, from a standpoint of efficiency or lack of efficiency the Australian reamer to which you have referred to?

A. Why, although there is a great deal of difference in the general make up of the two reamers, in some ways they had principles that were similarly relative. [701]

Q. 81. In a general way how would specify that the Australian underreamer was more similar in principal to the Wilson and Double than to the Austrian underreamer?

A. Well, on account of the expansion of the lugs.

Figure #2161 of the Oil Well Supply Company's Catalogue of Pittsburg, Pennsylvania, bearing date of 1900, is at least similar to the Australian Underreamer I have referred to as the one which was brought from Petrolia. I can't say that it is exactly



(Testimony of James L. Bruce.)

like it but it was similar in construction, as near as I can remember.

I think the cutters were about fifteen inches long. From that cut I would be able to make an underreamer exactly as it is supposed to be illustrated therein. I would connect the upper end of the cutters with the pin and the pin would go through the body of the reamer and through the cutters interlapping. The pin is shown in the cut. I should judge the total over all measurement would be two and one half or three feet. If I had no knowledge of such Australian underreamer other than is shown in this cut 2161, I could not figure out the construction. I could not say of it being used but the once.

A. 114. Well, I used a great many of the Wlison underreamers out there and they always done what was required of them in that field.

Q. 115. Did you have many breakages to many of the Wilson reamers there?

A. No, not that I remember of outside of the wearing of the reamers occasionally and we would break off a lug in the reaming of a well.

I have never seen one of these Australian reamers in California except this one in 1900. The Oil Well Supply Company has been in business in Bakersfield ever since I have been in the country. They were here in 1900. I cannot recollect a time when they were not here. Based upon my experience with this Australian reamer in 1900, I would not consider such a reamer as that a safe reamer to [702] attempt

(Testimony of James L. Bruce.)

underreaming any territory such as Lost Hills, for example.

I don't think it is necessary to have a water course in an underreamer for the reason that your lugs in the hole are so much larger than the body of your reamer that it will never obstruct the fluid passage. If the reamer was so large as to not permit a clearance it would not be an underreamer at all. By that I mean the body of the reamer.

**Testimony of Hibbard S. Williams, Called on  
Behalf of Defendant.**

Mr. Williams testifies as follows:

My age is 42; occupation, oil operator and proprietor of Machine-Shop Works at McKittrick. Have been in the oil industry since 1901.

A. For seven years I was superintendent of the Associated Oil Company in the McKittrick district, and also in the Kern River field; since then I have been operating for myself.

Am familiar with underreamers and have used them in various fields in the State of California. The first reamer I had experience with was an Austrian underreamer. That was in 1901.

A. 13. That was, well, it is my recollection—I don't know who owned the tool, but we had occasion to acquire one of the Green-Whittier property in 1901, and this Austrian underreamer was talked about—suggested to run it, and finally we backed out of it; it didn't look as though it would be feasible, and we made up our minds we didn't want it.

(Testimony of Hibbard S. Williams.)

Next underreamer used was the Double reamer in 1904 in McKittrick field, and then used the Wilson reamer in the same year and the same place.

Q. 20. Are you using any underreamer at the present date?

A. At the present date? No, I have a full string of Double's and a full string of Wilson's that I have for renting purposes. [703]

Q. 21. What was the last underreamer that you yourself used?

A. 21. That I myself used personally?

Q. 22. Yes. A. Was the Double.

Q. 23. Which of these underreamers, if either, do you use most? A. Have used the Wilson.

(Here the witness was duly sworn and cautioned according to law, he swearing that the testimony already given was, and that the testimony to follow shall be the truth, the whole truth, and nothing but the truth.)

Mr. BLAKESLEE.—Q. 24. How much more have you used the Wilson than the Double, and, if you will, first state with respect to the element of time, and then, approximately with respect to the number of holes?

A. Well, I will say that I have used the Wilson underreamer from 1904 to the present time, and comparing that with the Double underreamer, I will state that I have practically used the Wilson exclusively. The only reason for my using the Double was for the fact that I didn't have a Wilson to run, or I

(Testimony of Hibbard S. Williams.)

would have used a Wilson, I didn't have the right size.

Q. 25. Can you state why you have used the Wilson reamer almost exclusively?

A. I considered it the safest and the best.

Q. 26. Can you give a little further, please, the reasons for your conclusions on your part?

A. I considered the cutters much stronger—less liable to break; and the elimination of the center-joint is a big feature in the Wilson. I considered it the stronger reamer, and one that causes less trouble; it gives much better satisfaction.

Q. 27. Why do you consider that the elimination of the center-joint is an advantage for the Wilson reamer?

A. For the reason that there is no possibility of the reamer [704] coming in two while at work in the hole—that is the principal reason.

Q. 28. In using oil-well tools of different kinds, what can you say as to accidents of this kind occurring at joints?

A. I can't give you any positive date regarding the fact of the Double underreamer becoming unscrewed at this joint, but I will say—even under oath—that I know of two occasions (if I had the opportunity I could get sufficient data) where the Double underreamer has come unscrewed in this center-joint.

Q. 29. Do you know, of your own knowledge, also, what followed such occurrences at the center-joint?

A. It was practically a hopeless fishing job. There was one particular case—I don't know whether the

(Testimony of Hibbard S. Williams.)

well was abandoned absolutely for that reason, but it offered a good excuse, and was abandoned.

Q. 30. Can you tell me where these occurrences took place, that is, on what properties?

A. Well, there was one well that was on the "Associated," and the other well was a wild-cat hole—it was drilled out from McKittrick there, I don't know the name of it, but I can give you that data by referring to my records.

Q. 31. (Mr. LYON.) Do you know these matters of your own personal knowledge?

A. I tell you, being proprietor of the Iron Works, I have fishing-tools for rental, and these things come up.

Q. 32. They are told you? A. Yes.

Q. 46. In using your Double underreamer, have you ever had any breakages occur of any kind, in running the Double? A. No, sir.

Q. 47. Have you ever had such breakages in the running of the Wilson?

A. Breaking of the joint do you mean? [705]

Q. 48. At any part.

A. Breaking of any part of the tool. Yes, I have, I have broken the underreamer cutters of the Wilson underreamer.

Q. 49. And about the Double cutters?

A. I never broke any.

Q. 50. In approximately how many holes have you used the Double? A. In two holes.

Q. 51. In how many, roughly, have you used the



(Testimony of Hibbard S. Williams.)

Wilson?     A. Roughly I should say about ten.

Q. 52. How many cutter breakages did you have in using the Wilson?—

A. I have broken two cutters.

Q. 53. Can you state what occasioned such breakages, so far as you know?

A. I do, it was occasioned by the fact that we were running the underreamer in extra heavy pipe that required the cutters to be turned down to such small size that the cutters were weakened, to such an extent, we were drilling in such hard formation, it would be absolutely impossible to expect them to stand.

The purpose of the safety bolt in the Wilson reamer is to prevent the mandrel-bar from dropping out, in case a Key should break, or the mandrel should break; prevents the cutters from dropping in the hole and losing them. The first Wilson underreamer I used was in 1904. It was sent to me from the Bakersfield Iron Works. I returned it to the Bakersfield Iron Works when I had finished with it. Used it about 30 days. I had no trouble with it whatever. It was the first Wilson reamer I ever saw. It was used on the well called "Giants number 51." We started drilling in on August 24, and finished in December of 1904. I have never seen a Double reamer which had in any manner been worked upon so as to permit use of it after it had been worn past use.

Q. 95. When you next have occasion to use an

(Testimony of Hibbard S. Williams.)

underreamer, what underreamer will you use?

A. When I next have occasion to use one I will always use the Wilson. [706]

Q. 96. Have you anything further to state as to why you will always use the Wilson?

A. I consider it the safest; it has the strongest cutters; it has eliminated this center-joint; it has a safety-bolt to eliminate losing cutters in the hole.

Q. 104. You have referred to the "bottom bolt" in a Wilson reamer, and to its function of catching the cutters in case of a breakage, so as not to lose the spring-actuated rod. This bolt also forms a connection between the two parts of the lower end of the Wilson reamer, and braces such parts against any tendency to be spread outward, does it not?

A. Yes, sir.

Q. 105. Have you ever used the Wilson reamer without this bottom bolt in it?

A. I have run them where they have been neglected to be put in, on a soft formation, or where we didn't anticipate any trouble,

Q. 106. You would not consider it safe to use them on a hard formation without that bolt?

A. I would prefer to have them in—I would not lose my cutters.

The re-machining of Wilson underreamers makes them practically new reamers.

(Witness is shown Oil Well Supply Catalog, 1900, page 117, Fig. 2161.)

I have never seen this cut before. I never have

(Testimony of Hibbard S. Williams.)

seen an underreamer like this. From this cut I do not know as I would be able to make an underreamer embodying that construction. I think I would have to do an awful lot of guessing there. From that cut I cannot see how I would make the reamer. Based upon my experience, I do not believe such an underreamer would be safe and reliable tool in California drilling.

Mr. BLAKESLEE.—Q. 126. Referring again to this cut, 2161, in Oil Well Supply Company 1900 catalogue, please look at it and point out such features as strike you as being analogous to anything you know about underreamers, if you find such. [707]

A. Well, I consider this, whatever constitutes this bottom joint, to be a weak feature; also the fact of it shouldering up against this body here (indicating) as being another weak feature, for this reason, that any underreamer, unless your cutters are sharp, they have a tendency to wedge and drive in; and it appears to me that if these cutters would become dull at the point, it would have a tendency to wedge or key-seat in the hole; they would not cut—just simply key-seat.

I would say that the Canadian underreamer is more like the Wilson than the Double as it has no middle joint in the body. If the cutters of the Canadian reamer move their action would compare with that of the Double.

Mr. BLAKESLEE. — Q. 175. Proceeding similarly with the Double underreamer, and entering the

(Testimony of Hibbard S. Williams.)

two slots, what would you encounter?

A. You would encounter the body of the reamer.

(At this point the objection already set forth to Q. 174 was made, whereupon Mr. Blakeslee stated, "I will withdraw and restate.")

Q. 175. Are there any slots in the Double underreamer which accommodate the cutters?

A. There are.

Q. 176. Are there any slots confined in any way at their inner portion?

A. They are dovetailed.

Q. 177. I mean the portions of it lying farthest in the body.

A. No, there is nothing there in the Double; the slots are milled into this body, and there is a center of it is unlike the Wilson—the Wilson is hollow and the Double is not.

**Testimony of Sam G. Lamb, Witness Called on  
Behalf of Defendant.**

Mr. Lamb testifies as follows:

My name is Sam G. Lamb; age, 41; residence, Bakersfield; occupation, oil-well driller. Have been operating for twenty-five years. My experience first commenced in Pennsylvania. Have [708] operated in Ohio and California. Am familiar with underreamers. First reamer I ever saw was in Los Angeles. It was a Kellerman underreamer. That was in 1899 on Ocean View Avenue. We underreamed the hard places with the Kellerman reamer. The reamer was owned by Mel Kellerman. I had

(Testimony of Sam G. Lamb.)

different sized Kellerman reamers on a different sized casing. I saw other Kellerman reamers besides that. The reamer was like that shown in Kellerman U. S. Patent 679,384. We drilled probably twelve hundred feet. We finished the well, yes, lowering the casing.

We had trouble with the Kellerman reamer in getting it out of the hole.

I have used Austrian underreamers, Swan underreamers, Double reamers and Wilson reamers. I at one time used Austrian reamers nearly constantly for over a year. Drilled possibly four or five wells, while using Austrian underreamers, reaming shales and hard shells. Got pretty fair results, they were frail. They was not exactly right. In some cases where it was very hard we had very little difficulty, other times where it was hard we broke the lugs sometimes and had considerable trouble. But at that time we considered them about the best we could get. We were able to lower our casing, using Austrian reamers but sometimes it took extra time to do so. Along about this time I run the Swan, a little after I had run that Austrian underreamer. I found that pretty much the same as the Austrian.

We used the Swan underreamers on the Prosperity Oil Company's property in Kern County, on Poso Creek.

Have used the Double reamer and in most cases we have had good results with it. However, I had one case where I could not get results with the Double reamer. That was in Coalinga. It was in 41½"



(Testimony of Sam G. Lamb.)

casing. It would not reamer the hole large enough to permit the casing to go through. We did not abandon the hole but we got a Wilson reamer which reamed the hole and we finished [709] the well with it. We did not have a bit of trouble with the Wilson reamer. It did the work satisfactorily. I have used lots of tools in the last few years, I suppose I have used five or six Wilson underreamers or had them used. Have never had any trouble with them. I prefer the Wilson reamer especially where I am using heavy pipe and heavy collars as the Wilson will expand more and the casing will follow better. Again there is one joint less in the Wilson reamer body and I believe that avoids danger—makes the reamer that much safer.

Q. 102. There was practically no other reamer in use out there at the time the Wilson came out, except the Double, was there? A. I don't think so.

Q. 103. Based upon your experience then up to the time the Wilson reamer could be had, the Double reamer was the only reamer used in California?

A. Yes, it was the only practical reamer we had up to that time.

Mr. LYON.—That is all.

Redirect Examination.

Mr. BLAKESLEE.—Q. 104. You have testified about using other reamers in going through shells with them prior to using the Double reamer; in view of your testimony will you please tell us what kind—when you state that the Double reamer was the only

(Testimony of Sam G. Lamb.)

practical reamer—that you had prior to the advent of the Wilson reamer??

A. We used the Austrian, that was the best reamer. Well, we got along with it and got the wells down, though, really, it was not right; there was not hardly a practical reamer. We got along with that because we had no better. It sometimes took two or three weeks to do what should be done in twelve hours.

Q. 105. In what sense do you mean that the Double reamer is a better reamer?

Mr. LYON.—Objected to as leading.

A. Yes, I considered the Double reamer a better reamer than the [710] Austrian.

Mr. BLAKESLEE.—Q. 106. Then in using the word “practical” please state how you meant to use it.

A. Well, these reamers was of a different age; what was considered practical at one time would not be considered practical now. When the Austrian was the best reamer we had considered it was a pretty good tool; but when a better reamer came out the Austrian was discarded and was not considered of any use. The Double reamer was not nearly so good when it first came out as it was later—they have all improved their reamers. We used to take six months to drill a well that we will drill in one now.

Q. 107. What did you wish to say with regard to these practical reamers with respect to the coming of the Wilson reamer in the field?

(Testimony of Sam G. Lamb.)

A. When they got to using heavier pipe and drilling deeper wells and harder territory they could not have done that with the old reamers we had at one time.

Q. 108. What did the Wilson reamer have to do with this?

A. It has got more expansion than any other reamer I have ever saw. It will go down casing that is quite heavy, small inside diameter, and will cut a hole large enough to let it through.

Q. 109. How would you apply your meaning of the word "practical" relative to reamers of the present day to the Wilson reamer?

A. I consider it is practical. At the time we ran the Austrian and the Swan underreamers we run light casing. It would cut a hole big enough to let light collars through; but when we used a heavy casing and heavy collars in most cases you could not get a Double down so that it would let that heavy collar through.

Q. 110. What did you think then that the adoption of the heavier casing did in the improvement of the reamer?

A. Well, the improvement of the reamer became necessary when you used the heavier casing. [711] They improved their calf wheels at that time, also improved the rig irons now using sprocket wheels and chain instead of rope for the transmission of power. We used Manila lines where we use wire lines. There is no Manila lines used at all now for

(Testimony of Sam G. Lamb.)

casing and it never was the right thing.

When I used the 4½" Double reamer in Coalinga that I had the trouble with I certainly did know that the Union Tool Company made two kinds of cutters, one for heavy casing and one for light casing. I used the cutters they recommended for the heavy casing, and I dressed the cutters out as wide as I could. I consider that the Double reamer is impracticable in the small sizes where heavy casing is used. The Double reamer I was using was a new reamer and it would not do the work. I got a Wilson reamer and it did the work perfectly. That is my experience. In ordering that reamer I gave the inside diameter of the casing as well as the outside diameter of the shoe and collars. [712]

**Testimony of William Edwards, Witness Called on  
Behalf of Defendant.**

Mr. Edwards deposes and states as follows:

My name is William Edwards; born in 1853; resident, Burlingame; occupation, blacksmith. Am with the American Forge Company at the present time. For about four and one half years prior to my engagement with this Company I was living retired—out of business. Before that I was in business for myself, then known as the William Edwards and Company. Previous to that my firm name was Russell and Edwards. Previously that my firm name was James W. Russell and Company. We manufacture artesian well tools and machine forgings. We manufactured all kinds of oil well



(Testimony of William Edwards.)

machinery and apparatus, drilling tools and etc. We shipped goods to the Pacific Coast, Hawaiian Islands, Mexico, Japan and Australia. I made underreamers for underreaming casing. We made one special reamer here, that was the J. E. Day reamer. We made a regulation reamer for water wells. Well, I am positive of making one, and I believe that I made two, but I would not swear to two; but I remember positively, I will swear, to making one. I did the actual forging on that reamer myself. The machine work was done by C. H. Evans & Company, a firm which is still in existence. They are on Fremont Street near Howard Street in San Francisco, Cal. I did that work in 1892, if I recollect correctly. I will make a sketch of the Day reamer as it was made at that time which will explain it. It was made so that it would go down inside of the casing and when it got below the casing it would expand and cut a larger hole than the casing. Well, the reamer consisted of two cutting parts; A was the cutting part of the reamer; B is a dart for expanding the reamer jaws; C was a spring that was used to force the dart in between the cutters; D is the thread connection connecting the reamer with the drill stem; the jaws or cutters of the Day reamer were moved relatively upwardly by the [713] spring and expanded over the dart. The jaws were collapsed by striking against the casing which compressed the spring and the cutters would collapse over the end of the dart. The cutters would strike against the shoe remaining station-



(Testimony of William Edwards.)

ary, and the dart would move up and from between the cutters. The dart would fall into a recess in the cutters which allowed the cutters to close together. The machine work was done under my direction. I supplied the drawings and the patterns for them to work by. I saw the work frequently while it was in the course of manufacture. The reamer was made on the order of a mining company of which Mr. Prather of Oakland was one of the firm. It was used by a driller named Fox. Fox gave us the instructions. He was to use it. The tool was shipped with other tools we made to a mine and Mr. Fox there operated the tools.

Q. 94. Tell us what you know about the operations, of your own knowledge.

A. Well, I don't know anything of the operation any more than it was operated by Fox, because it was made for Fox—Fox was the driller working for this company, and Fox superintended the making, of the tool in our shop. He was to operate the tool. I never saw Fox operate this tool.

I shipped the tools myself. That reamer I think was above five feet long, the whole tool. The reamer is made so that it will cut a large enough hole to get a clearance for the cutting-shoe on the point of the casing. Its expansion was probably  $1\frac{3}{4}$ ". I am positive that the expansion for all reamers is made so that it will cut a large enough hole for the cutting shoe. At least for whatever sized casing it is to be used for.

By Mr. BLAKESLEE.—The sketch produced by

(Testimony of William Edwards.)

witness and referred to in the course of this deposition is offered in evidence as "Defendant's Exhibit Edwards Sketch of Day Reamer." [714]

The reamer to which I referred as being used for water wells was a different reamer from the Day reamer. It was an entirely different tool. The cutters we made for the Day reamer were about four feet long. The cutters of the Day reamer were held in place by a cut-away shoulder that shouldered on the upper portion of the dart. J. W. Russell continued in business for some three years, then it was J. W. Russell & Company; then it was Russell & Edwards; afterwards it was William Edwards; then I succeeded to the business after that. We continued to carry on the business of manufacturing artesian and oil-well boring and drilling tools until 1908. The business is still in existence, running under the name of Edwards and Forest, successors to William Edwards & Company; during all of that time we continued the same line of business. The regulation reamer for water wells that I speak of is not the Day reamer that I sketched here today, it is an entirely different kind of a tool. I have no distinct recollection as to the size of the Day reamer I made. It was about four feet long and I think was for  $9\frac{5}{8}$  inch casing. I saw Mr. Fox many times after the shipment of this tool. I have made other tools for him often.

**Testimony of J. W. Russell, Witness Called on  
Behalf of Defendant.**

My name is J. W. Russell; age, 58; residence, 310 Sixth Avenue, San Francisco. I am a Christian Science practitioner. At one time I was a manufacturer of well tools. That was from 1885 to 1899. Prior to that time I was a blacksmith. While with the firm of J. W. Russell & Company or the firm of Russell & Edwards we made oil well tools. Also artesian well tools. We made an underreamer for Jere Day. I think we got permission from Day to make that reamer. I think a man by the name of Fox got permission to make it. It was a patented tool. It was made somewhere between 1892 and 1896 to the best of my recollection. We made the forgings for it and Thompson & Evans did the machine work on it. Edwards [715] did the forging on that reamer. I saw him do the work. I think that first reamer was to run inside of 8 inch casing. All the records and details of that reamer were burned up in the fire of 1906. The tool we made is the same as that shown by patent "Defendant's Exhibit Day Patent 403,877." I believe that reamer was shipped to Montague. It was shipped to a man by the name of Fox. I don't remember whether we made more Day reamers than that or not. The cutters were probably about four feet long. Oil well tools that we made in 1885 to 1899 went to Bakersfield, Honolulu—they were shipped all over the State. Some went to Mexico.

XQ. 1. (By Mr. LYON.) This is the only one of

(Testimony of J. W. Russell.)

these reamers that was made at your shop?

A. I would not be sure whether we made two; I am not sure about that; I remember of one.

XQ. 2. If you did make two, both were made for Mr. Fox?

A. Well, I would not be sure of that either.

XQ. 3. You have no distinct recollection whether you made a second one or not then? A. No.

I have no personal knowledge as to where that tool was used by Mr. Fox or what he did with it. Jeremiah E. Day lived in San Francisco. He was in the same line of business. Eastwood was his successor.

**Testimony of John Thompson, for Defendant.**

Testimony of JOHN THOMPSON, being produced as a witness on behalf of defendant, testified as follows:

My name is John Thompson, age, 63; resident of San Francisco; proprietor of machine-shop. We used to do work for Russell and Edwards, who conducted a blacksmith-shop. We kept a general jobbing shop and did all kinds of work for them. We worked [716] with all kinds of tools, oil well tools, underreamers, bits, etc. We did some work for them on a reamer known as the Jeremiah Day underreamer. Our records are burned up, but I think it was somewhere in the 90's. We did the machine work and [717] they did the forgings. In referring to "Defendant's Exhibit Edwards Sketch of Day Reamer." I recognize the reamer that we made at that time. It shows the dart with the egg-



(Testimony of John Thompson.)

shaped and which spread the cutters. I am sure we made more than one of those reamers but I don't remember just how many. I think it was probably  $7\frac{5}{8}$  inch reamer. I think we made the reamer from working drawings. I am sure we also worked for Russell and Edwards on Hoagland reamers.

**Testimony of Joseph Eastwood, Produced on  
Behalf of Defendant.**

Mr. Eastwood testified as follows:

My full name is Joseph Eastwood; age, 50 years; residence, San Francisco; occupation, manufacturer. Have been in the manufacturing business since 1891. Was blacksmithing and we made well tools, forgings of all kinds. In 1891 our firm was known as the American Tool Works, Eastwood and Wilson. It was formerly American Tool Works, Day & Pracy Brothers. The full name of Mr. Day was Jeremiah E. Day. I went to work for them in 1888 or 1889. We made well-boring tools, drilling tools, etc. Among those we made underreamers which was an expansion tool. They called it the Day underreamer. I did the forging on one of those tools for them. I made part of the forgings for the Day reamer, yes. We had no machine-shop and the work was sent out for machine work. The Day reamer had two cutters or bits which were fastened together by plates; there was a dart that expanded a tool and there was a coupling or pin connection that connected it on to the other tools. There was a spring that was set over the stem and was connected to the dart. I think it was assembled in the



(Testimony of Joseph Eastwood.)

C. H. Evans Machine Works.

Q. 18. Did you see it after it was assembled?

A. That I could not say. It is likely I did because the tools [718] were almost always shipped back to the shop and shipped to the place of consignment from there, but I would not swear positively that I did.

Q. 19. Do you know whether more than one of these Day reamers was made at the shop of Day & Pracy while you were employed there?

Mr. LYON.—I object to that as leading.

A. Well, I don't know as there was more than one made while I was there, but I know there was more than one made in the shop because there was one sold to me in the shop when I bought it in 1891; but as far as I know I had nothing to do with the making of it.

Witness in referring to "Defendant's Exhibit Edwards Sketch of Day Reamer" states that the reamer is similar to that sketch. It was just a little bit different in the shoulders. The one I refer to was arranged to tie the cutters together by a wire which wire broke when the tool was lowered on to the bottom of the hole. That allowed the cutters then to expand. I offer a sketch of this device as I remember it same being marked and lettered. The sketch just produced by the witness is offered in evidence as "Defendant's Exhibit, Eastwood Partial Sketch of Day Reamer."

I had the patent papers, namely, of the Day patent in my safe until the fire. They burned up.

(Testimony of Joseph Eastwood.)

The tool we made was not exactly like that disclosed in the Day patent but the principles were the same. The patent is exactly the same as we had. In 1891 I bought the old Day shop and everything in it. And I suppose I acquired the Patent at that time. That was in 1891. I made a Day reamer after I bought the shop in 1891 or 1892. I also made one in 1893. The reamers were made from wooden patterns. Yes I had tracings or drawings, of the reamer. The wooden models were burned up in the fire. [719] The cutters were made of tool steel. The string of tools connected to the shank of this Day reamer. When the wire by which the cutters were tied together broke on being brought to the bottom of the hole, the spring raised the cutters to expanded position. The cutters collapsed by contacting with the casing shoe, and until such a time as the box or cavity in the back of the cutters collapsed over the head of the dart. I tried to sell the underreamer but there was not much demand for them. I never found any objection to it when I tried to sell it. After the strike of 1901 we kind of pulled out of the oil-well drilling tool business.

Cross-examination.

XQ. 4. You thought when you purchased this business you purchased the patent that went in connection with this reamer, didn't you?

A. Yes, that is what I thought.

XQ. 5. And your reason for not manufacturing more of these reamers was not because the patent

(Testimony of Joseph Eastwood.)

was outstanding against you, was it, owned by others, I mean? A. Oh, no, I never considered that at all. If I could get orders I would have kept on making them, taking the chances.

XQ. 6. If you don't own the patent to-day that is a surprise to you, isn't that so? A. Oh, no, I would not say that.

Q. 43. Did you ever make the parts of or any of the parts of another of these Day reamers? A. Yes, I made a reamer afterwards, after I bought the place, in the latter part of 1891 or the early part of 1892.

Q. 44. After you bought over this Day & Pracy business did Day continue to have anything to do with it? A. No.

Q. 45. When did he sever his connection with this business?

A. I don't know; it was 1889 or 1890—I think it was 1890. [720]

Q. 46. How many more such Day reamers did you make?

A. I made one, I think it was in 1893.

We were not in shape to compete with the Los Angeles factories on account of concessions we made. That was not true prior to 1901, however.

**Testimony of Charles W. Fox, Being Produced on  
Behalf of Defendant.**

Mr. Fox testifies as follows:

My name is Charles W. Fox; age, 62; residence, San Francisco. I am an oil operator, an expert. I have had experience in oil-well drilling and oil-

(Testimony of Charles W. Fox.)

well producing. Have had experience in Pennsylvania oil business about thirty-eight years ago. Have had experience in drilling in California beginning about twenty-eight years ago. First work was in the Topango Canyon, about nine miles west of Newhall. Have used underreamers and am familiar with them. The first underreamer I ever used I believe was made in Pennsylvania, I believe was known as the Fox underreamer. The next was what I called the Edwards and Rusrell; I never knew any other name for it. I used that reamer about twenty years ago about one mile from Montague, in Siskiyou County on what is called the Prather Ranch. The reamer was purchased by Mr. Prather from Edwards and Russell. They had a shop at San Francisco. I would say that was in 1892. I think that is the date as my boy was born that year. We encountered hard rock which we could not make big enough with the regular drill and we had to get an underreamer of some kind, and I asked Mr. Prather to get it. I first saw the reamer in the shop of Edwards & Russell. The next place I saw the reamer was on the derrick at Montague. It might have been a couple of years after I first saw it. Of course those things it is hard to say; it is a long time ago, and I cannot remember. I would have to think the matter over to refresh my memory, but it was along about two [721] years. I said to Edwards then, I made the remark, "I hope to the Lord I never have to use them because they are a very bad thing to use.

(Testimony of Charles W. Fox.)

They get one in trouble; they are hard to run, an awful hard thing to run, they are a kind of thing that makes it very dangerous to run, no matter whose make it is, an underreamer is considered one of the worst tools, the most dangerous to use of any tool that is used in a well. I do not think that I have ever used an underreamer since. I don't think I have ever seen either a Wilson or a Double underreamer."

Q. 46. Please tell us about your use of the Edwards & Russell reamer at Montague, that is, what you did with it and what results you obtained.

A. Well, we reamed about 18 inches, 18 or 24 inches of the hard, very hard shell which I call flint rock, which is as near flint as anything I ever saw; and after we got through the shell, so that the reamer would swing clear, we had no trouble then to run our casing on down, and we had no more trouble after that, as long as I stayed there; I did not stay there but a short time after that.

Q. 47. How long did it take you to drill that shell? A. It took us nearly four days.

Q. 48. How long did it take you to ream through it?

A. It took us about 18 hours work—just about 18 hours.

Q. 49. Do you remember what size casing you used in that well? A. 5 $\frac{5}{8}$ .

Q. 56. How did the general formations you encountered in that well at Montague compare with formations that are found in other fields, such as



(Testimony of Charles W. Fox.)

the formations in the Kern County fields, with which you have stated you are familiar?

Mr. LYON.—Objected to as immaterial, no foundation [722] laid, the witness not having qualified to answer the question.

Mr. BLAKESLEE.—Attention is called to the fact that the witness has testified to examining and reporting on oil-bearing territory, including those in the Kern County fields.

The WITNESS.—Just about the same.

Q. 57. What, if anything, can you tell us further about your use of this Edwards & Russell reamer, with respect to the nature of its service? A. Well, so far as I myself individually am concerned, if I had business and had reason to use an underreamer of that kind, why, I would as soon use that underreamer as any I ever saw.

Q. 58. Did you have any trouble getting this reamer into the hole?

Mr. LYON.—Objected to as leading.

A. Not a particle.

Mr. BLAKESLEE.—Q. 59. If you had any trouble in connection with using this reamer, please tell us about it.

A. We had no trouble at all, whatever.

I think the reamer when it was expanded to full size was about 7½" across the cutters. I think the reamer was about four feet over all. We carried the casing about 1484 feet. I never saw that reamer again.

Q. 81. Please look among the miscellaneous

(Testimony of Charles W. Fox.)

papers on the desk here containing letters, sketches, legal papers and the like and see if you find among them anything which in your opinion or to your knowledge bears any resemblance to the Russell & Edwards underreamer about which you have testified.

Mr. LYON.—Objected to as leading, not the proper method of proof, and tending to educate the witness for his further testimony in this case, and as incompetent and not the best evidence.

A. That looks like it. (The witness designates the drawing [723] “Defendant’s Exhibit Day Patent No. 403,877.”) This here is another.

Mr. BLAKESLEE.—Q. 82. Another what?

A. Another drawing that looks like the Edwards very much. (The witness refers to “Defendant’s Exhibit Edwards Sketch of Day Reamer.”)

Q. 83. Referring now to “Defendant’s Exhibit Edwards Sketch of Day Reamer,” are you enabled to point out on this sketch anything pertaining to the Edwards & Russell reamer to which you have testified?

A. Well, in fact, all this construction here is, as near as I can remember it, an exact sketch of the Edwards reamer.

Q. 84. Please point, if you find it there, to the part you refer to as a wedge?

A. This here. (Witness points to part B).

Q. 85. Please now point, if you find it there, to the part you refer to as the cutters or knives?

A. This here. (Witness points to the part A).

(Testimony of Charles W. Fox.)

Q. 86. By referring to this sketch are you enabled to state anything further with regard to the Edwards & Russell underreamer you used?

A. No, I cannot, nothing else; only it looks, it is just exactly the same in every respect, as near as I can remember it.

Q. 87. By referring to this sketch, are you able to tell me how the parts worked in a general way in that reamer?

A. Well, when this B is up in there (witness points to pocket E) when the wedge is up in there, B, why, then the wings or cutters are closed so that they enter the casing; then when it gets down low enough so that the cutters open out under the casing, then this drops down and holds them out and holds them in place. (In making this last answer the witness when he refers to "this" places his pencil on the part B of "Defendant's Exhibit Edwards Sketch of Day Reamer.")  
[724]

Q. 88. Do you recollect anything further as to how these movements of the parts were caused?

A. Well, when you pull the reamer out, of course this comes back in here. (Witness points to the part B and to the pocket E.)

Q. 89. Have you anything further to say about the method of operation of this reamer, from your recollection?

A. No, there is nothing else; the reamer done its work perfectly in every way, shape and form, so we ran our casing on down, we had no trouble with it in

(Testimony of Charles W. Fox.)

the least. While in Pennsylvania a day I used the Luther Underreamer.

Cross-examination.

XQ. 32. You never used this underreamer but on the one occasion, I suppose? A. That is all.

XQ. 33. How long did the underreamer job take you—do you recollect now?

A. Nearly 18 hours, somewhere thereabouts.

XQ. 34. The tool was in the hole all that time, was it? A. No, we had it out twice.

XQ. 35. For what purpose?

A. To see if it was sharp or if anything was wrong with it.

XQ. 36. That was the only underreamer that you had up there at Montague? A. Yes. [725]

TESTIMONY TAKEN IN OPEN COURT.

**Testimony of Frederick W. Jones, Called on Behalf of Defendant.**

Mr. Jones testifies that he is 53 years old; at present farmer but a machinist by trade; residence, McFarland, Kern County, California. Was an employee of the Union Oil Company in 1891 in their shop at Santa Paula, was a machinist and was prior to that time, in charge of that shop. They manufactured Oil Well Tools and did general machine-shop work. I don't know just the exact date, but I think I left their employ sometime in July of 1901. The name of the concern when I left it in July, 1901, was the same as when I went with it. Right away after leaving them worked in partnership with George L.

(Testimony of Frederick W. Jones.)

Skinner and conducted a machine-shop at Santa Paula. That firm's name was the Santa Paula Tool Works. It was in July, 1901, Mr. Edward Double was in charge of the Union Oil Tool Company's shop when I left in July 1901. Double took charge of the shop on July 5, 1897. Just prior to leaving their employment I think I was doing general work in the shop and assisting in most all of the work that took place.

A. 26. I expect I had better state the reason that I gave up the foremanship, and then you will understand it better.

Mr. LYON.—Objected to as not responsive to the question.

The COURT.—Overruled.

A. I was incapable of running the business, as my education was lacking as far as books was concerned, and I admitted the fact to the head of the concern and requested that the business be turned over to some other man.

Q. 27. (By Mr. BLAKESLEE.) What part of the work as foreman was it that bothered you?

A. The books part of it and attending to the business in general.

A. 29. I will explain it so that you can see the situation clearly. When I was employed by this shop first I was the only [726] machinist there. The shop was a very small matter and after years it grew and there was more men employed and there was a great deal of estimating and figuring to do, and I was not capable of giving estimates on work and giving exact figures and things, so I felt that I could not attend to



(Testimony of Frederick W. Jones.)

that end of it. I told the officials that my lacking in that line—I felt I was taking the right course in wanting to resign the position—and then they sent East and got Mr. Double. And to prove this, I was still employed by the company in the shop for years afterwards. But I went back onto the lathe and worked as other men did in the shop, and it was at my own request.

Q. 30. (By Mr. BLAKESLEE.) Did you do any drafting at that shop?

A. Yes, I did considerable drawing, as I had taken a course in mechanical drawing years before, and I followed that up considerable and I had lots drawings previous to that and I made several drawings after Mr. Double had taken charge. In fact, I assisted him in every way in that line that I could, and helped him out.

Q. 31. Did Edward Double make any drawings in connection with the shop work while you were in that shop?

Mr. LYON.—Objected to as leading.

The COURT.—Overruled.

A. Well, not to any great extent, I don't believe. He admitted to me once that he was not capable of making drawings to speak of, and he left a good deal of that work for me to do and figure out.

Q. 32. (By Mr. BLAKESLEE.) What work did Edward Double do in that shop while you were there?

Mr. LYON.—Objected to as incompetent, no foundation laid, the witness not having qualified to answer the question.

(Testimony of Frederick W. Jones.)

Mr. BLAKESLEE.—He states he was there.  
[727]

The COURT.—The objection is overruled.

A. He of course took command and instructed in a general way the work to be done, and took up the business where I left off, and he proceeded to establish a system of keeping accounts and keeping books that I was not capable of doing.

He did no work in the machine shop on the tools. No one else did any drawing or drafting work in that shop that I know of, except myself.

Q. 37. State, so far as your knowledge can permit you, what Mr. Double's general fund of knowledge was when he came to that shop to be foreman, regarding oil well tools and underreamers.

Mr. LYON.—Objected to as incompetent; no foundation laid, the witness not having qualified to answer the question. There is nothing to show that this witness knew anything of Edward Double till he got there.

The COURT.—That is true, but the court understands the answer in connection with the situation.

A. Mr. Double had been used to oil-well work previous to the time that he came to the Santa Paula, and he understood considerable about the business. But the ways and tools in California were somewhat different from what they had been using in the East, on account of the different formations and different things they had to contend with, and of course I was of great assistance to him in that line, helping him out, and doing what I could to keep things going in

(Testimony of Frederick W. Jones.)

that line. Of course, his knowledge of the tools in California at that time was not what it is now.

Q. 38. (By Mr. BLAKESLEE.) During those years, while you were with that company and Mr. Double was there as foreman, did he give all his time and close attention to the work of that shop?

A. Well, a great portion of it. There was times when he [728] was not around the shop, of course, and at such times he generally left me in charge and told me about the work that had to be done right away, and requested me to look after it.

A. 41. I might say that things didn't go just as smooth as they should at several times, and, of course, Mr. Double made mistakes like other men. But I considered that he succeeded fairly well in a business which the business proves at the present time, that he was a good business man, at least, and it has grown from that time on. I considered that he made a fairly good success. But on the start it looked to those around at that time that he was going to make a failure of it.

A. 42. Whenever anything new came into the shop, of course Mr. Double generally consulted me as to those things, as a person naturally would, because I had been there longer and knew more about those things. Things would come in that Mr. Double had never seen before, and when such things did come in he always asked my advice about such things and the best way to go about the job, which was very natural.

We had underreamers to deal with ever since I can remember anything about the oil well business.

(Testimony of Frederick W. Jones.)

About 1900 we commenced to manufacture underreamers for the market. Prior [729] to that time we had repaired a great many underreamers. We repaired Austrian underreamers, Swan underreamers and several other makes. Mr Double did not do any of the repairing himself. I was in daily attendance in that shop. The first reamers we manufactured was the Austrian underreamer. Then we got up a reamer of our own known at the present time as the Double reamer.

Q. 51. You say "We got up an underreamer." Whom do you include in that word "we"?

A. I say "we." Me and Mr. Double of course was there, and we worked in unison in such things more or less and when [730] that was brought up we worked together on it.

Q. 52. How did you come to get up this underreamer?

A. The object, as I remember it at the time, was that they had brought the underreamer from the East, known as the Swan, and at that time they commenced underreaming, and it was necessary that we should have an underreamer to hold the other business of the shop, and this led us to think on the underreamer question and to make one of our own, which we tried to make superior to any of the others, on account of the other business.

The Swan reamer was like the brass model, and exhibit in this case, which Swan reamer was manufactured by the Leidecker Tool Company, Marietta,



(Testimony of Frederick W. Jones.)

Ohio, and was sold in California by the McFee Supply House.

Mr. BLAKESLEE.—In connection with this testimony we again offer in evidence this exhibit “Partial Model Swan Underreamer.”

The brass model of Double underreamer on exhibit I recognize as the second reamer that was manufactured at the Union Oil Tool Company’s shop at Santa Paula. That was called the Double reamer.

By Mr. BLAKESLEE.—We again offer in evidence in connection with the testimony of this witness “Defendant’s Exhibit Small Brass Model of Double Patent Underreamer” with lower dovetails out.

A. 58. There was a party by the name of Gilson brought a wooden model there for us to manufacture and this model was known as the Brown patent, and when it was brought there it was in the office and Mr. Double called me in to look it over, and asked me what I thought about it, and he said they were going to try to manufacture them. I told him that I didn’t think that it could be a success in the way it was made on account of [731] different things, and so we decided to make an improvement on it.

A. 59. I will state the reason that we did not take up the exact manufacture of that model. The reason was that there was a plate held on the side with bolts, and I suggested that those bolts would not stay there; that they would either be sheared off or become unscrewed in the well and the internal parts of the reamer would be lost in the hole, and it was almost impossible to manufacture the machine out of iron or



(Testimony of Frederick W. Jones.)

steel the way it was made, unless we went to work and got up a different type of reamer and manufactured one of those and it didn't prove to be a success.

Q. 61. (By Mr. BLAKESLEE.) To your knowledge, what was the first thing done at that shop with this Brown reamer when it arrived there?

A. There was never a reamer made entirely after that model.

Q. 62. Did you examine that model there?

A. I did.

Q. 63. How did you come to examine it?

A. Mr. Double called me into the office and showed it to me when Mr. Gilson brought it there.

Q. 64. Was it taken apart in your presence?

A. Yes, sir.

Q. 65. Can you tell us briefly what it looked like inside?

A. Well, it was constructed with a block and spring attached to the upper end of it, and the cutters pulled down over a tongue that held them down while they were passing through the casing. As soon as they passed through the casing the spring actuated on the cutters and brought them back over the tank and spread them out.

Q. 66. Can you state what was said by you or Double or [732] both at the time that this Brown device brought up by Gilson was shown you in Double's office?

A. Well, it is pretty hard for me to remember all the details of the conversation, but the principal feature of it was whether we could manufacture that

(Testimony of Frederick W. Jones.)

reamer the way it was or whether we could not, and I tried to explain to Mr. Double that it couldn't be made that way, and if it was made it would not be a success when in the well. That was the first thing we had to decide. We didn't want to make anything and send it out as a failure if we could help it.

Mr. Double asked me the question whether it would work or not. And that is what I told him.

A. 69. This reamer here is the one that looks similar to the Brown patent as it was known at that time. Here is the plate that I had reference to that was fastened on with screws; and in the motion of the tools working in the well, this plate would work loose and shear these bolts off, and the consequence is that the internal parts would fall out and be lost in that hole. That is the principal feature that we did not manufacture that reamer.

Mr. LYON.—I suppose you mean that that is the reason that you couldn't make it?

A. No. The principal reason was the interior work—to work that model out—with the tools we had at that time it was almost impossible to make it that way.

The model to the best of my recollection is the complete model of the Brown device or reamer. It is at least similar. To the best of my knowledge, however, this is an exact model. This model appears to me to be the same as shown by Brown Patent #687,296.

(Complainant's counsel objected to all questions relative to this Brown model. Defendant's counsel

(Testimony of Frederick W. Jones.)

stated it was "simply [733] showing the genesis of the patent in suit." The Court.—This witness has established that this Brown device was a failure. The Court is looking at it as indicated a while ago that it is developing this other invention. Mr. Blakeslee.—“We are not arguing that the Brown patent is pleaded in this case, because it is not.” (Page 26.)

In addition to the Austrian underreamer and Swan reamers and Brown reamers, the Brown model which we had knowledge of at the time of inventing the first so-called Double reamer we also knew of the reamer shown by the cut in the Oil Well Supply Company's Catalogue. It was known as the Canadian reamer. I had one of those catalogues at that time. I believe I had it in the office at that time. Probably had more than one of those catalogues. The Canadian reamer was something similar to the Brown as it had the locking device on the cutters similar to it. The upper ends of the cutters were pivoted on a spring the same as the Brown. The action of the cutters was similar to that of the Brown.

(Let the records show that the witness points out Defendant's Exhibit Oil Well Supply Company's Canadian Underreamer, stipulated January 18, 1913, Canada 41½ Underreamer. We again offer this exhibit in evidence in connection with the testimony of this witness.)

The catalogue I got which showed the Canadian reamer I got from R. H. Herron Company of Los Angeles. The cut of that reamer is shown on page 117.

(Testimony of Frederick W. Jones.)

We offer in evidence on behalf of defendant a catalogue of the Oil Well Supply Company just put before the witness, independent of the attached papers, Defendant's Exhibit Oil Well Supply Company's for the year 1900, identified by the witness Jones.

At the time we were designing a new underreamer we discussed [734] all the underreamers that were made, more or less, at that time. We discussed the Austrian underreamer also this Canadian underreamer and there were other reamers that I cannot remember now, but I remember their construction more or less but don't remember their name. I don't believe I can definitely state the substance of any such conversation.

A. 107. I think the first thing that was done was to make some kind of a drawing as to what we wanted.

To the best of my knowledge it was me. I made such a drawing. It was just a pencil drawing and showed the general construction as near as we could get at it at that time. Of course there was some changes more or less, getting a drawing before the thing was completed.

A. 110. It represented, as near as we could get at it, the first reamer that we manufactured there—the one with a detachable block and the spring attached, something similar to the Brown—the spring attached to the cutters and the rod actuating it between springs. The cutters moved up and down and expanded over the block.

A. 112. The thing came down with a tilting motion,

(Testimony of Frederick W. Jones.)

tilting of the reamer, or, in other words, the block.

A. 113. They contracted inwardly when they were close together. When they were going down the casing, and when they expanded they spread out.

I do not know what became of the first drawing I made. The drawing I first made of that first reamer was used around the shop during the manufacture of that tool. My recollection is that Mr. Richardson saw that drawing. His name is John Richardson. He lives in Santa Paula at present.

Q. 123. Did you show it to anybody else?

A. Well, I don't remember. I expect though that there were several that did see it, but to my knowledge I couldn't just name them.

The drawing was in the shop. It was for the purpose of [735] information to manufacture the tool.

A. 126. Well, the first thing was that the blacksmith had to make the forging, and it went from there to the machine-shop.

There were four or five blacksmiths there at that time and I believe Mr. Richardson did some of the blacksmith's work. I did some of the work on that reamer myself. I worked on the body of it, the main forging that carries the cutters. The tool was all made in that shop.

A. 136. Well, as I said before, there was a great deal of cutting and trying about it—about the first one.

Q. 138. What, if anything, did you have to do with the cutting and trying of it?



(Testimony of Frederick W. Jones.)

A. I don't remember just now, it is so long ago and it is hard for a person to keep those things in his mind. That is, the details of it.

Q. 139. Do you know anybody else that had anything to do with that? A. With what.

Q. 140. With cutting and trying, as you say.

A. Well, I don't, definitely.

Q. 141. What did the cutting and trying have to do—what device had to be tried out and worked over or changed?

A. Well, it was to get the proper expansion and proper contraction and have it so that it would come out of the hole freely without any trouble.

Q. 142. Was that changing parts or changing the form of the parts and dimensions?

A. Well, a little of both, I believe.

Q. 143. Do you know of anybody else who had anything to do with making up the drawing which was used for information in making this reamer?

A. No; I do not. [736]

Q. 144. Did Edward Double have anything to do with that drawing or the making of it?

A. Other than seeing that the thing was tried out after it was completed—after the drawing was completed.

Q. 145. Did he make any suggestions with respect to that drawing?

Mr. LYON.—That is objected to as calling for the conclusion of the witness.

The COURT.—The objection is sustained.

Q. 146. (By Mr. BLAKESLEE.) Did he make

(Testimony of Frederick W. Jones.)

any suggestions to you with respect to that drawing?

Mr. LYON.—The same objection. That is not the proper method of proving a conversation.

The COURT.—Overruled.

A. To the best of my knowledge and belief, he did.

Q. 147. (By Mr. BLAKESLEE.) What did he suggest?

A. Well, as to details of that I don't remember.

Q. 148. To your knowledge did he have anything to do with the making of the reamer following this drawing? A. Well, actual work, I think not.

Q. 149. Who, as a matter of fact, bossed the making of that reamer?

Mr. LYON.—Objected to as calling for a conclusion of the witness and as leading.

Mr. BLAKESLEE.—There is a boss in every shop.

The COURT.—Overruled.

A. Mr. Double was the foreman there and would naturally oversee the work.

Q. 150. (By Mr. BLAKESLEE.) As to this particular reamer, was there anybody that paid particular attention to following out the drawing?

Mr. LYON.—Objected to as calling for a conclusion and [737] not for a statement of fact.

The COURT.—Denied. Overruled.

A. We were more or less interested in the thing, all of us, and we took an active part in seeing that the thing was carried out right, myself included.

Q. 151. (By Mr. BLAKESLEE.) Can you mention any one thing which Mr. Double suggested to

(Testimony of Frederick W. Jones.)

you in connection with the drawing which you say you got up before this reamer was made.

A. Not at the present time, I don't remember.

I made the drawing in the office of the company. There were different people passing in and out at different times.

I took a course in mechanical drawing and took a diploma from the English Government.

Q. 155. Did Mr. Double to your knowledge make any drawings at that time of anything that was made in the shop?

A. Yes, I think he did. I think he took up drawing somewhat and done a little of it. But he stated to me that he didn't know much about it and would like to learn, and I assisted him in various ways in things that were necessary in carrying on the business.

Outside myself I don't know of any one who suggested any actual changes which was made in tools and devices, or made over such devices and tools as had to be altered in that shop in 1901.

A. 157. I believe I have already stated the necessity of it previous to this; that the underreamer business was getting to be quite a business and there was a great demand for them, and the party that had the underreamers to sell generally sold the other tools, and therefore we discovered the fact that if you did not have a good underreamer you would lose considerable trade in other lines and that parts of the underreamer was very necessary.

I believe our principle competitor at that time was

(Testimony of Frederick W. Jones.)

[738] the Leidecker Tool Company. They manufactured the Swan underreamer. I don't know just exactly what was said by Mr. Double and me when we discussed getting up a new reamer in 1901. I cannot state the substance of such conversation.

Q. 162. (By Mr. BLAKESLEE.) What was said at the time you discussed with Mr. Double in 1901, if anything, when it was first done, with respect to getting up a new reamer at that shop? [739]

A. We both worked in conjunction together more or less on the question, and we decided that it was shown that the one had the best inventive powers, his ideas were generally accepted and it proved the same with this.

Mr. LYON.—We move to strike out the answer from the record on the ground—

The COURT.—It will be stricken out as argumentative.

A. I don't remember just exactly what was said.

The underreamer disclosed by U. S. Patent #795,-197 issued to Edward Double for an underreamer is similar to the first reamer we got up at Santa Paula. I did not apply for a patent on that reamer for the reason that I thought all the points connected with it, or nearly all, had been previously used in other underreamers. The feature of drawing down and locking around the end of the reamer, to hold the cutters in place while passing into the casing was old. The system of expansion and contraction on this one appears to me to be the same idea as used in the Canadian reamer.

(Testimony of Frederick W. Jones.)

By Mr. LYON.—We do not pretend that in any one of the particular elements there was any novelty alone. Springs were old; spring-actuated rods were old; not only in this patent but in the patent in suit there are combinations of parts and these things separately considered are old.

The COURT.—With that concession, is it necessary to go into these parts?

Mr. LYON.—That is an irrebuttal presumption of the law arising from a claim of a combination. We could not be heard to deny it if we wanted to, and the mere question whether a spring rod like this is old is an admitted fact; we don't claim simply a spring and a rod.

The COURT.—Your concession simply goes to the spring and to the rod? [740]

Mr. LYON.—Certainly; and each one of the elements separately considered is old. Not as a combination, but each separately considered is old.

Mr. BLAKESLEE.—Does that go over the portion which the cutters tilt?

Mr. LYON.—Each portion of the combination separately considered is old. I cannot state it more definitely.

Mr. BLAKESLEE.—Was old at the time?

Mr. LYON.—Yes; was old, the mere fact that we claim a combination is evidence of that.

Mr. BLAKESLEE.—Not necessarily, but the concession we are glad to have.

A. Similar combinations were in use at that time. Part of the combination was used on the Swan



(Testimony of Frederick W. Jones.)

reamer and another part of it was used on the Canadian reamer. The actuating rod was similar to that reamer, and the collapsion of the cutters on the Canadian.

In designing the first reamer I was guided somewhat by the Brown underreamer as shown by Patent #796,197. The system of drawing down the cutters and locking them to go into the casing was one of the features. It gave the cutters a kind of tilting action.

Q. 186. Did you ever devise or get up or make any other kind of an underreamer after that time?

A. Yes, sir.

Q. 187. When, in the first instance?

A. I made a small model of a reamer about that time, of a different type.

Q. 188. Can you fix the time by a month?

A. No, I could not.

Q. 189. Can you give a date before which you made such a model? [741]

Mr. LYON.—Objected to as calling for a mere conclusion. The witness said he could not fix the month.

The COURT.—Overruled. He is asked to fix it by reference to some other time.

A. I only can remember that it was about the time that my mind was pretty well occupied with underreamers, and it was along in that time of the spring and summer of 1901.

Q. 190. (By Mr. BLAKESLEE.) Was it before

(Testimony of Frederick W. Jones.)

or after you left the shop of the Union Oil Tool Company?

A. This model I speak of I believe to the best of my knowledge,—

Mr. LYON.—I object to that on the ground that the witness is not testifying to anything but belief.

The COURT.—Well, it is one way. It is necessarily referring to his recollection of something that he did personally.

(Overruled.)

A. It was at the time—it was before I left the employ of the company.

I do not know where that model is. Have not seen it for several years; I have not attempted to find it. The last I saw of it was in the shop of Mr. Skinner, Santa Paula. Left that shop in the fall of 1902. That shop is not in existence. Part of that shop is in Los Angeles and is known as the Mills Iron Works.

The model was made of wood and was about 6' long. The lower point was rounded on both sides with dovetails and cutters moving on a circular plane on the lower end of the reamer. The cutters were actuated by a spring and a rod similar to the other reamers in question. The wooden model in this courtroom is an exact duplicate of the original model. This wooden model was made by Skinner and Jones in Santa Paula shops. I being the [742] Jones of that firm. It was made along in the winter of 1901, if I remember right.

These cutters are pulled down with a hook in the

(Testimony of Frederick W. Jones.)

dole and drawn down to the end of the casing; as soon as it was brought down through the casing it was released and they spread open that way. The dovetails allows it to run in. That is on a segment of a circle, and these cutters are slipped in. The cutters have dovetails, just the same as the Swan except that this one is on a circle and the Swan is on a straight plane. The backs of the cutters are segment of this circle. By dovetails I mean the web on the cutters which fit into those slots and holds the cutters in place. The dovetails are on a circular plane. The cutter does the reaming, the inward thrust of the cutters is taken up by the shoulders principally and by the face of the dovetails. The upper or inthrust is taken up at the upper end of the shoulder of the cutter, or upper end of the cutter. The small wooden model which was like this large one I made at home. I had it in my pocket while I was in the shop at work. I made no secret about it, I do not know to whom I did show it. I expect there were several of them seeing it. I don't know but what Mr. Double saw it; I believe he did. It is the best of my recollection I did see it,, and I showed it to him. That was before I left the Union Oil Tool Company's shop in July of 1901.

Defendant offers in evidence the wooden model just produced and identified by the witness, as "Defendant's Wooden Model of Jones Underreamer."

Defendant offers the underreamer device shown by witness to be introduced and marked "Defendant's Exhibit Fred W. Jones Reamer, Type 2."

(Testimony of Frederick W. Jones.)

By Mr. BLAKESLEE.— [743] Will ask that this device be changed and marked to read “Fred W. Jones Model Reamer Like Defendant’s Exhibit Jones Wooden Reamer Model.”

I remember when I showed this model to Mr. Double he made the remark that there was all kinds of reamers on hand. That has just come to my mind. He said that in the shop at Santa Paula. I think that conversation occurred in June of the year 1901 or something like that; I cannot tell the exact day and date when this was. That is the best of my recollection. I don’t remember whether the small model which I showed to Edward Double was completed and shown to Edward Double before the Brown reamer was brought to that shop by Mr. Gilson or not. We made several reamers of the type disclosed by the wooden model, and sold them. That was in 1901 and ’2.

Q. 243. Now, to your knowledge, after this under-reamer like the drawings of patent No. 796,197 was completed, do you know of any other kind of under-reamer that was made in the shop of the Union Oil Tool Company at Santa Paula before you left that shop?

A. I don’t remember that there was any one of them finished, but there was another one there under discussion, before I left.

Q. 244. Can you state how that compared with the reamer like this patent just referred to?

A. I would have to see the drawing. I can’t tell by the numbers.

(Testimony of Frederick W. Jones.)

Q. 245. How it compared with the drawings of that patent. (Hands patent to witness.)

A. Which reamer have you reference to?

Q. 246. The reamer which you say was commenced prior to the time you left that shop.

The COURT.—You said it was under discussion.  
[744]

A. It was not like this, in any way. It had dovetails on the sides to hold it in place, but the locking device to hold it in position while entering the casing is just the same.

It held the cutters in place. The body was made different so as to make the cutters longer at the shoulder. That reamer was constructed a sub, another part which screwed on the upper end. That sub had to be taken off when the reamer was taken apart. Don't know whether any reamers like that were made prior to 1901, prior to the time I left the shop in 1901. Reamers which were later made in that shop were very similar to the reamer that was under discussion at the time I left the shop. I have seen an underreamer made in accordance with the drawings shown in patent #734,833. They were made by the Union Oil Tool Company. First one was made in 1901, at Santa Paula. Not sure whether that reamer was made before I left or after.

Q. 265. Had you at any time in the year 1901 discussed with anybody such underreamers, namely, those similar to drawing of United States patent No. 174,833? A. I don't remember about that.

Q. 266. Referring particularly to the dovetail part



(Testimony of Frederick W. Jones.)

of such reamers like the dovetail part of the cutters shown in patent No. 734,833, did you at any time in the year 1901 discuss such dovetail parts with any person?

Mr. LYON.—Objected to as leading. He has already told what he did in regard to the dovetails in his own models.

The COURT.—The objection is overruled.

A. I discussed with Mr. Double more or less.

The COURT.—When was that?

Mr. BLAKESLEE.—In the year 1901. Can you state what part of the year 1901, approximately?

A. No, I cannot.

Q. 267. Can you state whether it was before or after [745] you left the shop of the Union Oil Tool Company?

Mr. LYON.—Objected to as leading and suggestive.

The COURT.—Overruled.

A. Well, it must have been before I left the shop.

Q. 269. Can you state the substance of that discussion?

A. I can't go into details as to the conversation at the present time, but it was to the effect that such would have to be used to hold the cutters in place.

Q. 269. Can't you recollect who said that?

A. I think that suggestion was made by myself.

(Copy of United States patent #796,197 offered in evidence.)

I believe drawings were made which showed or attempted to illustrate the dovetails on the body and

(Testimony of Frederick W. Jones.)

cutters of the reamer like in the drawings of United States patent #734,833. Those sketches were made by myself to the best of my recollection. Those drawings were on exhibition. Anybody could have seen them. They were in the office of the Union Oil Tool Company's shop; I do not recollect showing them to anybody. They were on a desk used by Mr. Double and others; I don't remember what time in 1901 I made those sketches of the dovetailed parts. I made those drawings before I left the shop of the Union Tool Company.

Q. 285. I call your attention to the notch key No. 17 shown in Double patent in suit No. 174,833, and ask you if you recollect anything concerning such key in connection with the discussions about the reamer made like that patent?

Mr. LYON.—We object to that on the ground it is assuming a fact not testified to by the witness, that there was ever any discussion about a reamer that was made like that. The most he ever said was that there was a discussion about a contemplated reamer.

Mr. BLAKESLEE.—He said afterward they were made and sold. [746]

The COURT.—The objection is overruled.

A. I know there were such keys made.

The COURT.—You were asked about a discussion.

A. Well, I don't remember that one feature—any particulars about it.

Q. 286. (By Mr. BLAKESLEE.) Have you any recollection as to its being made, by whom it was

(Testimony of Frederick W. Jones.)

made, or who furnished the information for making it? A. No.

Defendant offers in evidence for the purpose of illustration, wooden model in accordance with drawings U. S. patent 791,697, and ask that same be marked "Defendant's Exhibit Wooden Model of Double Patent, #796,197.

This is received simply for the purpose of argument.

The Swan reamer to which I have referred is like the one I point out here among these exhibits.

Q. 288. With respect to any of these reamers which you have testified about as having been discussed in the shop of the Union Oil Tool Company in 1901, namely the reamers for which you made sketches, reamers which were made or commenced at that shop, can you state from recollection any discussion in which Mr. Edward Double suggested certain features of construction or any features of construction or made any proposed changes in construction, and if so, please state the gist of such conversation.

Mr. LYON.—That is objected to as calling for the conclusion of the witness.

The COURT.—Objection overruled.

Mr. LYON.—And incompetent and not a proper method of proving a conversation.

Mr. BLAKESLEE.—I asked if there was a conversation, first. [747]

The COURT.—Answer the question.

A. No.

Prior to the time I testified in the other case,

(Testimony of Frederick W. Jones.)

namely the suit Elihu C. Wilson, versus Union Tool Company, I had a conversation with Mr. Lyon. It was two or three weeks before I testified in that case. That was last summer, yes. That occurred at my ranch at McFarland, my wife and Mr. Youngken and Mr. Lyon were present. I refer to Mr. Lyon, the attorney in this case. Mr. Lyon wanted to know if I had any models of any reamers, and I told him that I had one, but did not exactly know where it was. Then he asked me if I could find it, and I told him I thought I could. We got into an automobile and went to home ranch, and I found it and he asked me if I recognized it, and I told him I did, and that it was a model of one of those reamers made on the floor there. It was like reamer "Defendant's Exhibit Fred W. Jones type #1," so marked, being marked #A-4. We talked for several hours and I told him I did not want to take the matter up, because I did not have the time, and too busy, I wanted to keep out of this trouble, if I could. That I was out of the machinist business for all time and eternity, and I did not want to mix up with it. I told him if he wanted me to keep out of it and give me two thousand dollars I would keep out of it and I would not testify on either side and he made the remark that he could not do that, but he would give me two hundred and fifty dollars and I told him it was not worth bothering with. I suppose the \$250 was to be given me if I did not testify in this case, I don't know what else. I did testify in that case but I don't know whether I was testifying for him, or anybody else. I tried to



(Testimony of Frederick W. Jones.)

tell the truth, what I knew about it, whether any benefit to him or anybody else, I don't know. I received train fare and my day's [748] wage for testifying on behalf of defendant in that case. I received nothing in consideration of my testimony, no. I have received only regular expenses for testifying in this case. I have been promised nothing by anybody for testifying in this case, or any other case. I did not receive the two hundred and fifty dollars which Mr. Lyon offered me for not testifying in the other case.

Q. 316. Did you know that Edward Double had applied for a patent, namely, for U. S. patent 734,833, being the patent in suit, at the time it was applied for?

A. No, sir, I didn't know he was taking out a patent on it.

It was in November, the fall of 1901 before I found it out. I happened over there one day and saw the patent draftsman making a drawing in his office, and I saw that it was a Patent Office drawing and I knew then that he was applying for a patent on it. There was nothing said by me to Double about it at that time. It is my recollection that Double was present at the time the draftsman was working on those drawings.

I wish to state here, I made a mistake in my testimony at Bakersfield; I had stated in that testimony that I had never received any letters from Mr. Lyon, as their attorney, but after, I remember of receiving a letter from Mr. Lyon stating that I was not to



(Testimony of Frederick W. Jones.)

manufacture any more reamers, that it was an infringement of a patent that the Union Tool Company controlled. I don't remember the exact date, but it was sometime after we commenced the manufacture of the reamer with the round nose, with the circular cutters, like reamer in evidence, Defendant's Exhibit Wooden Model Jones Underreamer. That was in 1902 I believe. I didn't do anything about it. We quit manufacturing those reamers at that time. We did not want to get into a suit. We did not have no money to throw away for courts. [749]

Q. 334. What invention did you then understand was discussed in that letter or notification?

Mr. LYON.—That is calling for a conclusion.

Mr. BLAKESLEE.—Must have referred to some invention.

The COURT.—Objection sustained.

Q. 335. (By Mr. BLAKESLEE.) What was the substance of that letter?

A. Well, I have already stated that the substance of it was that we was infringing on a patent of theirs, that we should not manufacture any more of the reamers.

Q. 336. Was it an underreamer patent? A. Yes.

Q. 341. (By Mr. BLAKESLEE.) Were you from that letter able to understand what reamer was referred to by the letter? A. Yes, certainly.

Q. 342. What reamer was it?

A. It was reamers that they were manufacturing.

Q. 343. And what reamer was that?

A. The reamer that was—that has just been on ex-

(Testimony of Frederick W. Jones.)

hibition, exhibited here, the second reamer that was made. I cannot give you the numbers of it.

Q. 344. You mean reamer like Double patent in suit, No. 734,833? A. Yes.

Q. 345. I call your attention to the fact the date of that patent is July 28, 1903, and ask you if that in any way refreshes your recollection as to when such notice was received?

Mr. LYON.—We object to that on the ground it is attempting to impeach the witness on his own testimony, and leading. The date of this patent hasn't anything to do with that notice, so far as the evidence is concerned.

The COURT.—Objection sustained. [750]

Q. 347. (By Mr. BLAKESLEE.) Can you mention any other reasons why you did not resist the notice you received by that letter?

A. No. That was the only one, that we was not financially able to stand a suit.

Q. 348. Did you know at that time that there was any Double patent invention— A. Yes.

Q. 349. (Continuing.) Which he could properly threaten you about? A. Yes.

Q. 350. What was it that you thought he could properly threaten you about?

A. The patent under question now.

Q. 351. For what reason?

A. He had more money than I did.

Q. 352. Did you believe at that time he was the inventor of that reamer? A. No.

Q. 353. And you were forced to stop manufactur-

(Testimony of Frederick W. Jones.)

ing those reamers due to that threat?

Mr. LYON.—That is objected to as leading.

The COURT.—Objection sustained.

Q. 354. (By Mr. BLAKESLEE.) Was there any other reason why you ceased making your reamers, other and beyond such threats by that notice?

A. Not to my knowledge.

My only reason for not resisting the notice of infringement of Double's Patent was because we did not have money to stand the suit.

Q. 355. At the time you received that threat by letter or notice, did you know what the rights of an inventor were with [751] respect to any invention produced by him and patented by another if he were employed or under the supervision of such patentee when such invention was made?

Mr. LYON.—That is objected to as leading and incompetent, calling for the conclusion of the witness.

Mr. BLAKESLEE.—Finding out what he knew as to his rights.

The COURT.—Finish the question.

The WITNESS.—No.

The COURT.—Have you finished your question?

Mr. BLAKESLEE.—Yes.

The COURT.—Objection overruled.

Q. 356. (By Mr. BLAKESLEE.) Do you know now? A. Yes, sir.

The reason I did not apply for a patent on that underreamer which I have shown in the drawings which I made and which sketches showed the features pertaining to the dovetail on the cutters and body for

(Testimony of Frederick W. Jones.)

the reason that I did not think there were any patentable features about it at that time. The same principle had been applied to other reamers to some extent previous to that. Namely the Swan and the Canadian reamers cover pretty near the same features.

The first Canadian reamer I ever saw was to-day in this court room. My knowledge in 1901 was from the catalogue. I think I knew how that reamer was built by observing the catalogue. Furthermore, I had talked to people that had used those reamers previous to that time.

XQ. 371. Now, after you had received this notice from me in the fall of 1902, to stop manufacturing, what you have here to-day said was the reamer like this wooden model, Defendant's Exhibit Wooden Model of Jones underreamer, and you and Skinner had stopped the manufacture of that, did you commence the manufacture of another type of reamer? [752] A. Yes.

XQ. 372. What was that?

A. One laying on the floor there.

XQ. 373. Please identify that one for us.

A. That is it right there.

XQ. 374. That is the model that is marked Defendant's Exhibit Fred Jones Reamer, Type 1, at the present time, is it? It should be 2, I think. It is now marked 1.

A. At least it was the second reamer that I got up.

XQ. 375. And you commenced the making of that for the first time after you had received this notice

(Testimony of Frederick W. Jones.)

from me, in 1902, did you?

A. I commenced making that after we abandoned the other one.

XQ. 376. Well, now, answer the other question. Did you first commence the manufacture of this second one after you received the notice from me to quit manufacturing the infringing reamer?

A. I don't remember.

XQ. 377. What is your recollection in that regard at the present time? A. I have already stated.

XQ. 378. When did you first manufacture the reamer like the one to which we have last referred here, the one with the removable bowl?

A. I have already stated to the best of my knowledge.

XQ. 379. When was that?

A. After we manufactured the other one.

XQ. 380. So that in 1902 you made the first one like this with the removable bowl? A. Yes.

XQ. 381. What time in 1902? [753]

A. I don't remember the exact date.

XQ. 382. Was it in the fall of 1902?

A. I couldn't say from my—

XQ. 383. Was it as late as the 1st of December, 1902, that you made the first reamer like this reamer, old type?

A. I think it was in the summer or spring of 1902. I am not positive, though, I couldn't swear to that.

XQ. 384. Were you still in business with Mr. Skinner at that time? A. No, thank God!

XQ. 385. And you made none of these reamers



(Testimony of Frederick W. Jones.)

like this with the removable bowl when you were in business with Mr. Skinner as the Santa Paula Tool Works; is that correct?

A. We made the reamers there.

XQ. 386. Well, what kind of reamers did you make there when you were with Skinner?

A. We made both of those kinds.

XQ. 387. And when did you commence making this last kind with the removable bowl?

A. I have already told you I didn't know the exact date.

XQ. 388. You have already told me that you didn't make any while you were with Skinner, thank God. Now, please explain what you want us to understand by your testimony.

A. You asked if I was now engaged with Mr. Skinner. That is the question you asked me. I said no, I am not.

XQ. 389. Now, how long was it after you left the Union Tool Company before you commenced the manufacture of this type of reamer with the removable bowl? A. I don't remember.

XQ. 390. Do you remember whether you made any of those in 1901, in the fall of 1901?

A. I don't think we did. [754]

XQ. 391. Will you state positively that you did or did not, now?

A. No, I would not, because I can't remember the exact dates. I have nothing to refer to to establish the date.

XQ. 392. You were a witness on behalf of Edward

(Testimony of Frederick W. Jones.)

E. Mills in August, 1903, at the office of Hazard & Harpham, in Los Angeles, which office stood on this same spot on which this courtroom now stands, were you? A. Yes, I was a witness on that case.

I was a witness on behalf of Edward Mills in August, 1903. That case involved the application of Edward Double for patent #796,197, and application of Edward Mills for patent, on what was then known as the National underreamer, I believe. I presume I knew at that time Double had an application for patent pending on that reamer. I was a witness on behalf of Mr. Mills. I did not know that the issue was as to whether a patent should be issued to Mr. Double or to Mr. Mills.

XQ. 397. (By Mr. LYON.) You were asked in that case the following question: "Did you ever see the underreamer on which Mr. Double applied for a patent in this case?" And did you answer: "I don't know anything about his applying for a patent, but I saw the reamer," is that not correct?

A. I guess it is.

XQ. 398. You were then asked, "What reamer have you reference to?" And you answered, "I have reference to the first reamer that Mr. Double made, being Double's Exhibit underreamer," did you?

Mr. BLAKESLEE.—Show him the testimony.

The WITNESS.—It is there, isn't it?

Mr. LYON.—Yes.

The WITNESS.—What is the use of asking me such a question? [755]

(Testimony of Frederick W. Jones.)

Mr. LYON.—I want to know if that is a correct record of the testimony given by you at that time?

A. I think it is.

XQ. 399. And the old original reamer, like this patent No. 796,197, was there in evidence and before you at that time, wasn't it? A. Yes.

XQ. 400. You were also asked this question, "State whether from your knowledge of the underreamer put up by Mr. Double and referred to as his exhibit Double's underreamer, was it a practical tool, and whether the same could be successfully used." And you made answer, "To my knowledge it could not." Is that correct? A. Yes.

XQ. 401. You were also asked, "State your knowledge in that regard." "A. My information is from the men that did use it." Is that correct?

A. Yes.

XQ. 402. You were also asked this question and gave the following answer, "Q. Did you have a conversation with Mr. Double in regard to this reamer, and if so state the conversation." "A. While I was employed by Mr. Double, at the same time he was manufacturing this reamer in question, I had a conversation with him, and he said the reamer was a mean thing to manufacture, and that he would change the construction of it, and he showed me what changes he proposed to make, and he also asked me what I thought of the changes, and I told him that I thought the change was a good one; that's all." Is that a true record of the testimony given on that day?

(Testimony of Frederick W. Jones.)

A. No, it is not correct, in this way. It says when the thing was in manufacture, and this took place before it was manufactured. [756]

Q. 403. Did you give the testimony that I have just read in that interference, and on August 10, 1903?

A. I don't remember. I know that that was not the case, because the conversation that you have reference to took place before we commenced to manufacture.

XQ. 404. Please look at the record, and answer the question, did you give that answer on August 10, 1903, to which I have called your attention—yes or no? A. I did.

Mr. BLAKESLEE.—Make such explanation as you wish in connection with that.

Mr. LYON.—You may make any explanation you want. I am only showing now.

The COURT.—He can make any explanation now, or you can bring it out on redirect, if you have any explanation to make.

The WITNESS.—This conversation that he has reference to takes place before we commenced the manufacture of the underreamer of this type.

XQ. 405. The one that was referred to in this case? A. Yes.

XQ. 406. That I read from the record? A. Yes.

I think it was June or July that I left employ of the Union Oil Tool Company in 1901. Think it was

(Testimony of Frederick W. Jones.)

in July; I don't remember what time in the month, I couldn't say.

XQ. 411. And how long before you left there was this conversation to which I have just called your attention from this record of the interference testimony, how long before your leaving?

A. How long before I left?

XQ. 412. Yes.

A. I don't know. I don't remember these dates.  
[757]

XQ. 413. Well now, calling your attention to question 11, in your answers in that deposition, "Where was this conversation," you answered, did you, as follows: "At Santa Paula, in his office. I think it was along about the last of June or the first of July, I couldn't state the date exactly, 1901." You gave that answer, did you, at that time? A. Yes.

XQ. 414. And then you were asked this question, "What occasioned him to make the remarks about changing the lever," and you answered, "As he was having a great deal of trouble in manufacturing this reamer in question, that's all"; you gave that answer? A. Yes.

XQ. 415. At that time you refused to answer as to whether you had received notice to discontinue the manufacture of the underreamers which you had been manufacturing in Santa Paula, did you?

A. I don't remember that.

XQ. 416. You were asked this question on cross-examination, "You were notified by Mr. Double, or his company, that the underreamer which you had



(Testimony of Frederick W. Jones.)

been manufacturing prior to October, 1902, was an infringement upon the Brown patent, No. 687,296, dated November 26, 1901, and upon the Double inventions and the patents that would issue thereon, were you not," and you gave the answer, "I was not," is that a correct statement of the question asked and answered, given by you on August 10, 1903?

A. Yes. Those letters were not addressed to me. It was addressed to the company.

XQ. 417. And you did not see them. How long prior to the time Mr. Double had this conversation with you, when he said that this first double reamer was a mean thing to manufacture and then he would change the construction of it, and showed you [758] what changes he proposed to make in it, as you have testified here, in this interference proceeding—how long before that conversation was it that Mr. Gilson brought this Brown model up to Santa Paula, up to the office, to the Union Oil Tool Company?

A. I don't remember the dates, but I know the reamer was there at that time.

XQ. 418. Well, was it the year before?

A. Well, to the best of my knowledge it was some time in 1901.

XQ. 419. Did you ever go down to see Mr. Gilson, or Mr. Eichenhauser, or Mr. George Chatterton in Los Angeles, and talk with them regarding the Brown invention or patent? A. Yes.

XQ. 420. And in regard to the alleged infringement by Mr. Double, and the Union Oil Tool Company on that?

(Testimony of Frederick W. Jones.)

Mr. BLAKESLEE.—We object, no time and place, no foundation laid for such a question.

The COURT.—That matter will come up when he offers impeaching testimony, later. This is preliminary. Objection overruled.

The WITNESS.—I do not ever remember talking to anyone but Mr. Gilson about it.

XQ. 421. What did you have to say to Mr. Gilson?

A. I don't remember just the conversation now.

XQ. 422. When was that?

A. I don't remember the date.

XQ. 423. What year?

A. I think it was in 1901.

XQ. 424. That was after this first Double reamer had been built, wasn't it?

Mr. BLAKESLEE.—Objected to as no foundation. There have been a number of reamers referred to as Double reamers, [759] and it does not fix the time.

The COURT.—Overruled.

The WITNESS.—I don't remember.

XQ. 425. (By Mr. LYON.) Have you no recollection of the circumstances, whatever, of the building of this first Double reamer, like patent 796,197, the one which you are here to-day claiming you invented?

A. I remember this Mr. Gilson came to Santa Paula, and he and I had a conversation there about it, that Mr. Double was taking out a patent in his own name, on a certain reamer.

XQ. 426. Wasn't that the first conversation that

(Testimony of Frederick W. Jones.)

you ever had with Gilson in regard to that matter, had in Los Angeles?

A. The first conversation I had with Mr. Gilson?

XQ. 427. Mr. Gilson.

A. Gilson, I think, at Santa Paula.

XQ. 428. It did? A. Yes.

XQ. 429. Well, was that before or after the first Double reamer the one covered by this patent No. 796,197, was commenced in that shop?

A. I think it was afterwards, yes, it was afterwards.

XQ. 430. The gentleman who has just arisen is Mr. George L. Chatterton, one of the complainants in this case. You are acquainted with him, are you, Mr. Jones? A. Yes.

XQ. 431. When did you first meet him?

A. About three or four months ago, I think it was.

XQ. 432. Never met him in 1901 or '02?

A. Not to my knowledge.

XQ. 433. Did you go down to see old Frederick Eichenhauser in 1901 or 1902, regarding the patent in an attempt by you to make him believe that the Union Oil Tool Company or Mr. [760] Double was infringing on any right of Eichenhauser, Chatterton or Gilson in the Brown patent?

A. I had conversation with Mr. Gilson about that but not with Mr. Chatterton or anyone else, to my knowledge.

XQ. 434. Did you go down to the St. Elmo hotel in Los Angeles, to see Mr. Gilson on that trip?

A. I may have seen him there. I don't know that

(Testimony of Frederick W. Jones.)

I made a special trip for that purpose, or not.

XQ. 435. Did you see Mr. Eichenhauser in connection with Mr. Gilson at that time?

A. No, sir.

XQ. 436. Now, that was after you had left the employ of the Union Oil Tool Company?

A. Yes, sir.

XQ. 437. Please tell us your version, your reasons for making that trip to see Mr. Gilson, Mr. Chatterton and Mr. Eichenhauser in regard to that Brown patent at that time.

Mr. BLAKESLEE.—Objected to as irrelevant and immaterial.

The COURT.—Overruled.

A. I did not make the trip for that purpose.

Mr. BLAKESLEE.—Furthermore as incorrectly quoting the testimony, presuming contrary to the record as to the effect that he went to see all of those parties.

The COURT.—The question was not justified in that particular.

XQ. 438. (Mr. LYON.) What was your reason for seeing Mr. Gilson, as you now limit it to, at that time?

A. Mr. Gilson and me were pretty good friends, and we always talked more or less underreamers when we met up, and I don't remember that I ever made a special trip down to Los Angeles to see Mr. Gilson, or Mr. Gilson ever made a special trip to see me on the question, but when we met up, we always [761] talked about such things, more or less.

(Testimony of Frederick W. Jones.)

At that conversation I do not remember anything mentioned about infringing on anybody. I may have told Gilson to go to Santa Paula and see about it. But I don't remember. The model which Gilson brought to Santa Paula, I think was a 7 $\frac{5}{8}$ " model. I think it was about two feet long. There was no reamer made right after that model was received, that is while I was there.

XQ. 445. Now, I am coming down to last summer; you stated here to-day, that I offered you \$250 not to testify in the other case, the A-4. Where was it that offer was made?

A. On the porch at my home.

XQ. 446. Who was present?

A. My wife and my son and Mr. Youngken and myself.

XQ. 447. Had you seen anyone in reference to the underreamer, at any time within the three months prior to that day, and talked with him? A. Yes.

XQ. 448. Who?

A. Mr. Wilson came to my place to inquire if I knew anything about these reamers.

XQ. 449. That is Elihu C. Wilson who is here present in the courtroom and who is the complainant in the suit in which you testified in Bakersfield, and the president of the defendant corporation, Wilson & Willard Manufacturing Company? A. Yes.

XQ. 450. Now, who else, if anyone, have you talked with prior to your talk with me?

Mr. BLAKESLEE.—Objected to as indefinite, does not say about what or whether connected with



(Testimony of Frederick W. Jones.)

matters in this litigation, not proper cross-examination, either.

The COURT.—Overruled. [762]

A. On the day of the testimony I met Mr.—

XQ. 451. No, before that, Mr. Jones, I am referring to the time before I arrived at McFarland to see you, and within the six weeks prior.

A. No one, to my knowledge, except Mr. Wilson.

XQ. 452. Hadn't Mr. Youngken been there to see you, the day before, Mr. B. N. Youngken—stand up, Mr. Youngken.

(A gentleman stands up.)

A. Yes, I think he had.

XQ. 453. Don't you know that he had?

A. Yes, I think it was—I had got that time mixed up.

XQ. 454. Like some other things you have mixed. You had refused to come down to Los Angeles to testify the day before—

Mr. BLAKESLEE.—We object to remarks to the witness.

The COURT.—The remarks will be stricken out. You are just asked a question.

XQ. 455. (Mr. LYON.) You had refused the day before to come down to Los Angeles to testify in that case, A-4, unless you were paid \$1,000, had you not so stated to Mr. Youngken?

A. No, sir; I had never been requested to come I made the statement to him I would not go and take any part in it for less than a thousand dollars. That was the statement I made to Mr. Youngken.

(Testimony of Frederick W. Jones.)

XQ. 456. That was the day before I came up there?

A. Now, I don't remember what day it was, but I and Mr. Youngken had been there several times and I have forgot whether he had been there before you had or not, but he was there with you the day he was there.

XQ. 457. Now, Mr. Jones, please tell us just what it was, again, that I said to you with regard to offering you any money of any kind on that day.

A. I have already stated the conversation. [763].

XQ. 458. Please restate it in full.

A. I told you that I did not want to have anything at all to do with it, that I was out of the business, and that I did not want to testify in this case, if you would pay me two thousand dollars I would stay out of it; and you said you couldn't do that, you would give me \$250, and I told you I wouldn't consider it.

XQ. 459. You have stated all of that conversation?

A. Well, all of the conversation in regard to the money. I think that was all that there was to it.

XQ. 460. That is your best recollection?

A. Yes, I remember that you said you considered I didn't have anything to sell. That was one point I had forgotten about.

XQ. 461. And didn't I tell you I was familiar with the facts and knew that you had nothing, no rights that were worth anything to either of the parties?

A. Yes, that is it.

XQ. 462. And that I wouldn't give you any money for anything, but that if you would come down to Los Angeles and spend a week or ten days with me, hunt-

(Testimony of Frederick W. Jones.)

ing up all of the old evidence with regard to your old reamers, so that I could prove how many like the removable bowl type, as referred to you had made, and sold, in 1902 and '3 and to whom, that in that case I would pay you not to exceed \$250 for your time, and the time of your wife in coming down and making the search and in compensating you for putting a man in charge of your ranch while you were down here. Isn't that it?

A. I don't remember that.

XQ. 463. None of it?

A. If there was any conversation of that kind took place, I don't remember it. [764]

I am the Fred W. Jones named in the letters patent #809,570. In 1904 I was manufacturing underreamers in Santa Paula substantially in accordance with drawings in that patent. During that time I received notice that I was infringing a certain patent of Edward North. After receiving that notice I came to Los Angeles. I sold all my right covered by patent #809,570 to Mr. Double and Mr. North for one hundred and fifty dollars. I made no claim at that time to either Mr. Double or Mr. North or to Mr. Lyon that I was the inventor of any of the prior Double underreamers.

Cross-examination Resumed.

(By Mr. LYON.)

XQ. 471. We understand from your testimony of yesterday that you testified that when I called upon you at your ranch near McFarland, California, in the

(Testimony of Frederick W. Jones.)

latter part of July, 1915, I offered you \$250 if you would not testify in regard to the underreamer matters on behalf of either party.

A. I made a proposition to you that I would not take up the matter at all on either side, would not testify against it at all if you paid me \$2,000.

XQ. 472. Well, now, what was my statement you said that I made?

A. You said you could not do that, that you would give me \$250.

XQ. 473. For what? What was the rest of the statement?

A. You made that statement yourself. I did not make it.

XQ. 474. \$250 for what? Is that all the statement that was made?

A. That is all my recollection.

XQ. 475. Didn't I state to you that if you would come to Los Angeles, bring your wife down here, go to Santa Paula, dig up all the old records, find the parties that you alleged you [765] had sold the removable bowl reamer to, give me your testimony, and your time hunting that up, I would pay you not to exceed \$250, your expenses and your time, and your expenses in putting a man in charge of your dairy ranch while you were away?

Mr. BLAKESLEE.—We object to that. It is almost a verbatim repetition of the question put yesterday.

The COURT.—It is repetition, but this is cross-

(Testimony of Frederick W. Jones.)

examination. The witness is apparently interested.

Objection overruled. A. No, sir.

XQ. 476. Then you mean to state that my statement was I would give you \$250 practically if you kept still about these underreamer matters; is that it?

A. That is my understanding.

XQ. 477. Well, didn't I tell you in that conversation that it was not necessary for anybody to pay any money to get your testimony, that you could be subpoenaed, compelled to give it?

A. I don't remember.

XQ. 478. Well, you state positively that was no part of the conversation?

A. As far as my knowledge, it was not.

XQ. 479. Now, you did testify in that suit No. A-4 in equity and gave your deposition at Bakersfield, did you?

Mr. BLAKESLEE.—Objected to as having been answered fully.

The COURT.—Objection sustained.

XQ. 480. (By Mr. LYON.) How did you come to come to Bakersfield to give your said deposition?

A. I was subpoenaed there.

XQ. 481. By whom?

A. By the Union Tool Company. [766]

XQ. 482. And you received a telegram from Mr. E. C. Wilson asking you to meet him before you went on the stand to give that deposition, didn't you?

A. He telegraphed me to meet him in Bakersfield at seven o'clock.

XQ. 483. Now, all that was paid you in connection



(Testimony of Frederick W. Jones.)

with your deposition in that case A-4 in equity was your mileage and witness fees at three dollars a day; is that correct?

Mr. BLAKESLEE.—Objected to as having been answered fully.

The COURT.—Objection overruled.

A. That is correct.

XQ. 484. How long, Mr. Jones, after you left the employ of the Union Oil Tool Company was it before you commenced the manufacture of Jones reamers like Defendant's Exhibit Wooden Model of Jones Underreamer, and which for purposes of clarity hereafter I will call the Jones' round nose reamer?

A. I don't know, exactly—don't exactly remember the date. My memory is not good on dates, only certain occasions, things that impress my mind at the time, I remember, but dates, I can't remember.

XQ. 485. Well, was it in the fall of 1901, or the spring of 1902 that you first made Jones round nose reamers? A. I couldn't say.

XQ. 486. Were you engaged in partnership at that time with George L. Skinner? A. Yes, sir.

XQ. 487. At Santa Paula Tool Works?

A. Yes, sir.

XQ. 488. Now, you put out one of the so-called round nose reamers, did you?

A. We put out several. [767]

XQ. 489. And then those not being satisfactory, you devised this second type of Jones reamer, the one which has the removable bowl; is that correct?

Mr. BLAKESLEE.—Objected to as assuming a

(Testimony of Frederick W. Jones.)

fact not testified by the witness as to any unsatisfactoriness, and misleading, putting an improper construction upon previous testimony.

The COURT.—Objection overruled.

A. We manufactured that reamer that you have referred to there.

The COURT.—Which one.

A. The one with the removable bowl.

XQ. 490. (By Mr. LYON.) And you manufactured a number of those, of the removable bowls?

A. Yes.

XQ. 491. And abandoned entirely the manufacture of the Jones round nose type? A. Yes.

XQ. 492. Now, referring to the time you were employed by the Union Oil Tool Company at Santa Paula, during the year 1901, what time during the year was it you left the employ of that company?

A. To the best of my knowledge it was in July.

XQ. 493. What time in July?

A. That, I couldn't state.

XQ. 494. And where had you been working for that company just prior to leaving its employ?

A. I had been working in the machine-shop.

XQ. 495. Which machine-shop?

A. There was only one at that time.

XQ. 496. The Union Oil Tool Company only had one shop at Santa Paula? A. Yes. [768]

XQ. 497. They never operated but the one shop there then at that time? A. Yes.

XQ. 498. You are sure of that?

A. That is all I knew of.

(Testimony of Frederick W. Jones.)

XQ. 499. Isn't it a fact that in 1901 the Union Oil Tool Company had its own shop in Santa Paula and that it also rented Skinner's shop for a portion of the year 1901?

A. I believe it rented a machine there and put a man in there for a time, but that wasn't owning the shop, by any means.

XQ. 500. They were operating in that shop, though, weren't they?

A. I believe they had a man working there for a few days on account of rush of work.

XQ. 501. You were that man, weren't you?

A. No.

XQ. 502. Never worked in the Skinner shop for the Union Oil Tool Company.

A. Not to my knowledge.

XQ. 503. You state positively during June and July, 1901, you were not at work for the Union Oil Tool Company at this Skinner shop, in Santa Paula, and not in the main shop of the Union Oil Tool Company?

A. I said to the best of my knowledge I was not.

XQ. 504. After you, as you supposed using that term in the same sense that you did in your testimony, made this drawing of this underreamer in the shop of the Union Tool Company, and by that I mean this drawing like Double Patent No. 796,197, who is the first one of the workmen in that shop to whom you gave directions in regard to the making of such tool?

Mr. BLAKESLEE.—Objected to as not proper

(Testimony of Frederick W. Jones.)

cross-examination, [769] the witness never having testified he worked in the Union Tool Company shop.

Mr. LYON.—Make it Union Oil Tool Company, then. I left out the “oil.”

The COURT.—Overruled. Proceed.

A. Such things as that was generally done by Mr. Double.

XQ. 505. (By Mr. LYON.) And you gave no instructions to anyone in regard to the work that was to be done in that regard?

A. Only on certain occasions when—

XQ. 506. I am speaking about this particular reamer, not on general work now. A. I can't say.

XQ. 507. Did you ever give any instructions to Mr. W. F. Dinger, in regard to making that particular reamer?

A. I don't remember that I did.

XQ. 508. Or to Mr. Terriberry?

A. I don't remember whether Mr. Terriberry was employed there at that time or not.

XQ. 509. Was he employed there at that time?

A. I couldn't say.

XQ. 510. Did he work on this particular reamer?

A. I don't remember.

XQ. 511. Did Mr. Dinger work on this particular reamer?

A. I don't remember now whether he did or not. He may have done so.

XQ. 512. You know Mr. Weakly? A. Yes.

(Testimony of Frederick W. Jones.)

XQ. 513. What was his job there in the Union Oil Tool shop at that time.

A. He was running a lathe, I believe.

XQ. 514. Did he do any of the work on this reamer? A. I believe he did. [770]

XQ. 515. Did you know T. N. Gibson?

A. I have a slight recollection of him.

XQ. 516. Did he work on this reamer?

A. I don't know.

XQ. 517. What part of the work did he do on it?

A. I don't know that he done any on it.

XQ. 518. Now, I suppose you assembled this reamer, did you, when it was made?

A. I don't remember that I did.

XQ. 519. Well, did you? A. I couldn't say.

XQ. 520. Do you know who did assemble it?

A. I don't remember that.

XQ. 521. Can you tell me any particular work that you did on that reamer?

A. Well, it is 14 years, is a long time for a person to remember what he done and give the exact details, and my memory is not as good as it might be, and I have forgotten a great portion of what transpired in the shop at that time, but as I said before, the things that impressed me most were certain things that transpired, and those were on my mind, and others are apparently a blank at the present time.

XQ. 522. Did you ever talk to Mr. Terriberry in regard to that reamer and in regard to your having taken any part in its invention?

A. Well, I may have; I couldn't say that I did or did not.



(Testimony of Frederick W. Jones.)

XQ. 523. Well, if he was there working at that time and if you had been the inventor of it, you would have, wouldn't you? A. I expect, yes.

XQ. 524. Did you ever talk to Mr. Dinger in regard to [771] that reamer and your having invented it? A. I don't know that I did.

Prior to Mr. Lyon's visit to my place, Mr. E. C. Wilson had been up to see me at the ranch. Mr. Wilson asked me if I knew anything about the under-reamer business, and wanted me to state what I knew to be a fact, and I did so. Then he asked me if I knew what inventors' rights were regarding to inventions, and I told him that I knew something about the law, but I was not very well posted on it, and he *informed that* the inventor and not the man that had taken out the patent was entitled to it, or words to that effect. Those were the principal features of the conversation. There may have been more, but I don't remember.

XQ. 522. Referring now to your deposition in case No. A-4 in Equity, in this court, you were asked by Mr. Blakeslee, the counsel for Elihu C. Wilson, and present counsel for the defendant in this case, the following question, and gave the following answer, is that not correct: "Has Mr. Edward Double or anyone representing him ever paid you or offered you any money or other consideration of any kind further than what you received in compensation for your service in the shop, I mean as a workman in the shop at Santa Paula? A. No, sir. You had better change that because that is going to get balled up

(Testimony of Frederick W. Jones.)

in this other reamer. I might state the amount I got for the Junes patent to which you have called my attention was \$150. Q. The only other money you received was \$150 or thereabouts altogether for assigning to Mr. Double and Mr. North Jones patent 809,570? A. Yes.

That is a correct statement of your testimony given?

Mr. BLAKESLEE.—Let the witness be given a chance to examine it. [772]

XQ. 533. Given in Bakersfield?

The COURT.—Speak louder.

A. I think it is.

XQ. 534. (By Mr. LYON.) Referring to your same deposition I call your attention now to cross-question 294, and the answer: "You had a talk with Mr. Frederick S. Lyon, present here, attorney for the defendant in this case, prior to giving your present testimony, did you not? A. Yes. XQ. 295. What did you discuss with him? A. Well, he stated the facts of the case; that there was a—I suppose you would call it a suit, would you not?—between Mr. Wilson and the Union Oil Tool Company, and that he knew from past experience that I knowed a great deal about the underreamer business and its origination here in California, and he came to me for some information which he had positive proof that I could furnish. He knew that I had invented some underreamers and he wanted for me to kind of state as to the dates when these different makes of underreamers were manufactured, and also when they were in-

(Testimony of Frederick W. Jones.)

vented. I think that was about the sum and substance of the conversation as to the underreamer business. Wasn't that about all, Mr. Lyon? \* \* \* Mr. LYON.—I cannot answer now. By Mr. BLAKESLEE.—You have not anything further to state? A. No." That was your testimony? A. Yes.

XQ. 535. (By Mr. LYON.) On redirect examination you were asked question "375 (By Mr. LYON.) And in such conversation with me did you not state that you wanted a thousand dollars and your expenses to come to Los Angeles to give that testimony in this case? A. I mentioned the fact that if my interests in the invention of this reamer was worth anything, it ought to have been worth a thousand dollars. That was the conversation that took place in regard to the money matters. Q. And did [773] you not refuse to come to Los Angeles on behalf of defendant in this case unless you were given your expenses and a thousand dollars? A. No, sir.' Was there any conversation to that effect? A. No, sir.

XQ. 536. Is that the testimony you gave?

A. Yes, sir.

XQ. 537. "390. (By Mr. LYON.) As a part of the conversation which you had with me on August 3d, 1915, I stated to you at that time, did I, that you had no rights in any of these underreamer matters that could be purchased by anyone, anyway, and that you had nothing to sell to the Union Tool Company or to Mr. Double? A. Nor have I nothing to sell now. I have first to establish my claim. Q. I made that statement to you, didn't I? A. Yes. Q. 392.

(Testimony of Frederick W. Jones.)

(By Mr. LYON.) And told you that either party, if they wanted your testimony, could subpoena you and you would be compelled to give your testimony, and that you knew that I knew of my own knowledge in regard to the facts of this case? A. Yes." That was your testimony, was it? A. Yes.

Mr. LYON.—That is all. [774]

Redirect Examination.

(Mr. BLAKESLEE.)

RDQ. 538. Now, in your talk with Mr. Lyon, August 3, 1915, concerning the payment by him to you of \$250 did that refer to your giving testimony in the case?

Mr. LYON.—That is objected to as calling for a construction and interpretation.

The COURT.—The objection sustained.

RDQ. 539. (By Mr. BLAKESLEE.) What was your understanding from the statement made by Mr. Lyon that this \$250 he offered you was to be paid you for?

Mr. LYON.—That is objected to as calling for his conclusion on a conversation.

The COURT.—Objection sustained. He may state the substance; if he cannot remember the words then he can state the substance.

RDQ. 540. (By Mr. BLAKESLEE.) What did Mr. Lyon say it was for? Give the substance of such statement, if you can remember it?

A. I suppose he meant—

The COURT.—That is just what I said you could not tell. You can state what you recollect what he

(Testimony of Frederick W. Jones.)

said and leave it to me to determine what he meant.

A. I told him that if he would give me \$2,000 I would not take any part in it, and he said he could not do it,—he would give me \$250. I suppose it was for me not taking no more in it.

RDQ. 541. (By Mr. BLAKESLEE.) At the time you testified for Mr. Edward Mills in the Double-Mills interference, No. 22,593, concerning underreamers, did you have any business connection with Mr. Double or any member of your family have any such business connection?

A. I think I had a couple of boys working for him at that time. I don't know if I was subpoenaed by Mr. Mills or not. [775]

RDQ. 545. In the testimony read to you by counsel for complainant, quoted from the record in this interference, there is a reference in your answer to question 10, to proposals for changing the construction of a reamer, and that that was proposed during the manufacture of that reamer. What have you to say as to such proposals or changes, what was said in connection therewith and what manufacture did you refer to?

Mr. LYON.—That is objected to as calling for the conclusion of the witness and not for a statement of facts.

The COURT.—The objection is overruled.

A. Which reamer have you reference to?

Mr. LYON.—You are referring to the answer to question 10 which I read to the witness?

Mr. BLAKESLEE.—That is it.



(Testimony of Frederick W. Jones.)

The COURT.—That is in the interference?

Mr. LYON.—The interference.

Mr. BLAKESLEE.—The Mills-Double interference; what is the question with regard to that?

The WITNESS.—Referred to the manufacture of the first reamer that was made with the detachable block.

RDQ. 546. How far had that manufacture proceeded at that time?

A. Well, in fact, I don't believe it had started to manufacture; it was under discussion at that time.

RDQ. 547. And what changes were proposed, in other words, what was said as to such proposed changes?

A. Well, we had talked the matter over for several days. I had advanced several ideas and did not know what he was going to accept or reject in the matter, until finally we concluded to adopt the present style of reamer.

RDQ. 548. Well, who was it first made the changes which Mr. Double suggested? [776]

Mr. LYON.—That is objected to as leading and as calling for a conclusion.

The COURT.—It is is leading.

RDQ. 549. (By Mr. BLAKESLEE.) Well, you stated you talked over certain things with Mr. Double. In such talks who was it suggested the changes and what was said in that connection?

A. Well, the changes was principally suggested by me, and I was the one he conversed with about these things more than anyone in the shop.

(Testimony of Frederick W. Jones.)

I called on Mr. Mills this morning at the Mills Iron Works and he stated that he had never seen the 6" wooden model of the first round nose reamer. The sketches I made in 1901 were left at the office of the Oil Well Tool Company. Those sketches laid around the office of the Oil Tool Company for several months. I think they were there when I left that shop.

In regard to the notice of infringement I received from Mr. Double, will say that I don't think there were any numbers of any patents given in that notice.

RDQ. 550. You have stated that you abandoned the manufacture of the round nose type of reamer prior to taking up the manufacture of the removable bowl type reamer. Was there any reason other than the receipt by you of that notice of threat of infringement leading you to abandon such round nose type reamer manufacture?

A. Yes. They did not prove to be a perfect success, although they were used. But they gave more or less trouble in getting them down the casing and so I invented the other reamer on account of it being a better reamer and done away with the difficulty of getting it through the casing.

Not until Mr. Wilson informed me in regard to what the rights of a patentee or an inventor are even though he be employed [777] by another at the time of making the invention had I known of such.

RDQ. 563. (By Mr. LYON.) Had you made any claim of any kind prior to 1915 or any assertion of

(Testimony of Frederick W. Jones.)

it, either to the Union Oil Tool Company or Union Tool Company or Edward Double or any person connected therewith that you had anything to do with the invention of the Double reamer. A. No.

Mr. BLAKESLEE.—Objected to as the witness has already testified that he did not believe there was any invention.

The COURT.—Overruled. Is that all?

Mr. LYON.—Just a moment.

RDQ. 564. I show you a document and ask you if that is a drawing of the application for patent filed by you on the Jones round nose removable bowl reamer so-called? A. Yes, that is it.

Mr. LYON.—We offer this in evidence in connection with the cross-examination of this witness.

The COURT.—It will be admitted.

RDQ. 565. (By Mr. LYON.) You never filed any application for patent upon the Jones round nose reamer, did you? A. No, sir.

Mr. BLAKESLEE.—Objected to as calling for a conclusion.

The COURT.—Overruled.

Mr. LYON.—That is all. Witness excused.

**Testimony of William G. Naugle, Witness Called on Behalf of Defendant.**

Mr. Naugle testified as follows: My name is W. G. Naugle, age 43, residence, Santa Paula, hardware merchant. In 1901 I was employed by the Union Oil Tool Company in Santa Paula. Was working as a boilermaker's helper. Was acquainted with Frederick W. Jones. Mr. Jones was

(Testimony of William G. Naugle.)

a machinist in the Union Oil Tool Company's shop at the time I was employed there. He did general work on the oil well tools. I know he worked on the Double underreamer. It was a new underreamer. [778]

Q. 18. And was that an underreamer that they were manufacturing right along in that shop?

Mr. LYON.—That is objected to as leading.

The COURT.—Objection overruled.

A. To my memory it was a new underreamer. I wasn't at all familiar with what was being manufactured; I was a new man there, but it is just very faint in my memory as I remember, Mr. Jones was working on an underreamer.

What I remember about it was this: The machine-shop was in front of the shop, the boiler-shop was in the next lot, and the Union well supply house was in the next lot. We had to pass through the boiler-room to get to the supply house where we would get different materials for to put in, different tools for machines that they would be working on. And I remember the underreamer hanging in the shop and Jones was working on it and went back and forth through the shop to get different things for it. I do not know what year it was. I cannot describe that reamer now.

Q. 25. Do you remember any other underreamer that Mr. Jones was working upon during that period of time—during the years 1900 and 1901?

The COURT.—He has not testified anything about 1900.

(Testimony of William G. Naugle.)

Mr. BLAKESLEE.—He said it was during 1900 or 1901, the period of time that they both were employed there.

The COURT.—I understood he testified he went to work there in 1901.

Mr. LYON.—He said he couldn't state whether it was 1900 or 1901 when he was there.

A. I remember that they were first working on an underreamer, and they took it out to the oil field, and if my memory is right it lost the jaws of it off, or something like that, and it was brought back and they changed the pattern or style of the reamer.

Q. 26. (By Mr. BLAKESLEE.) Have you any knowledge of any such [779] changes—what they were?

A. No; I don't know anything of the changes.

Mr. LYON.—We move to strike the preceding answer from the record on the ground that it is hearsay.

The COURT.—Well, it does not appear to be hearsay now. Denied.

I am acquainted with John A. Richardson of Santa Paula. He was in that shop at the same time. I am also acquainted with Richard D. Whidden of Santa Paula. He was connected with the Union Oil Tool Company at that time. I saw Mr. Whidden almost every day when I was working at that shop. His office was right adjoining. The boiler-shop was under the same roof of the Union Oil Tool Company's shop only a partition between them. I do not know that the same reamer was



(Testimony of William G. Naugle.)

changed after the jaws were broken in it but there was a change from that reamer to one having dovetails in it. I wont say that it was the same reamer. From what I know about forgings, I would not think the same reamer could be changed. It is my recollection that Mr. Jones was still employed by the Union Oil Tool Company when this reamer was brought back with the jaws lost. I don't remember what time of year it was when that reamer was brought back with the jaws lost. I don't know whether it was 1900, 1901 or 1902. I was connected with the Union Oil Tool Company until they moved to Los Angeles.

RDQ. 52. (By Mr. BLAKESLEE.) Have you any recollection as to who worked on the reamer in the changed or modified form or the reamer of modified form, including the dovetails, after the trial of the first reamer that Jones worked on?

A. According to my recollection it was at the time Jones worked on it. While I may be wrong, it is in my mind that he worked on this second reamer and, as I remember his general talk was—

Mr. LYON.—Wait a moment. We object to the general talk as hearsay. [780]

The COURT.—Sustained.

RDQ. 53. (By Mr. BLAKESLEE.) Is that your best recollection?

A. That is my recollection,—that Jones worked on the reamer when it came back.

Mr. BLAKESLEE.—That is all.

**Testimony of Mrs. Olive E. Jones, for Defendant.**

My name is Olive E. Jones; residence, McFarland; housewife. I am wife of Frederick W. Jones. Have lived in Santa Paula and was then the wife of Frederick W. Jones. Went to Santa Paula in February, 1897. My recollection is Mr. Jones left the Union Oil Tool Company's shop employment in July, 1901. I had a sister visiting me through May, June and July, 1901, and it was during that time that he quit the Union Oil Tool Company. My sister's visit terminated in August. The latter part of Mr. Jones' employment, Mr. William B. Naugle was foreman. Mr. Jones had been foreman prior to my acquaintance with him. I visited that shop many times. I visited all parts of the shop, wherever Mr. Jones happened to be. I went to the office and if he was in the machine shop I went there. I remember at one time he was working or discussing workings on drawings on an underreamer. I believe Mr. Whitten was there and also Mr. Double. Before seeing those drawings I had heard Mr. Jones discuss them. He told me what changes he was going to make. When the first reamer went out it failed to be a success, on account of not being enough stock, as he said, in the cutters, and he was going to change and make dovetails in the cutters and also in the body. That discussion I had with him previous to the time I saw him working on the drawings in the office of the Union Oil Tool Company. He talked at home stating that there would have to be a change made in some way to give more

(Testimony of Mrs. Olive E. Jones.)

stock to the cutters, as there was where the under-reamer was weak. As I stated before that was prior to the time I saw him working on the drawings in the office. [781] I saw the drawings at that time in the office. To the best of my recollection he showed me the changes he had made or that were made to give the cutters more stock. The drawings were not completed at that time. I have seen drawings before like that shown in Complainant's Exhibit Double Patent. In describing those drawings I will say that the cutter had a slot in it, and the body had a slot in it, and the cutters had something that just fit up in that slot, and the body had been cut entirely away to give room for more body in these cutters. That is the change he showed me, that he had talked about. The cutters worked up in the body in the place of the outside. The drawings he was working on was like those shown by Complainant's Exhibit Double Reamer Patent. That was the drawing he was working on, and it was this part of the body and this part of the cutters what he was making the change in, and here is where the portion was cut out in the body to let the cutters have more stock.

By Mr. BLAKESLEE.—Let the records show that the witness points first to figure 9 and to the part marked 7 and 9, and the adjacent portion and secondly, to figure 11 and the part on the cutters marked 29.

When Mr. Jones got up that round-nose cutter and also the two reamers that he got up himself

(Testimony of Mrs. Olive E. Jones.)

during 1901 and 2 he showed me the drawings. The wooden model, reamer #1 is like one of those reamers. It was in the fall of 1901 that I saw a drawing like reamer #2. I saw sketches like wooden model or reamer #2 that I have just pointed out. That was in the spring and summer of 1901. I also saw a little wooden model in the early part of 1901 like that type of reamer. It was about an inch or an inch and a half in diameter and about six or eight inches long. He carried it around in his pocket, and took it out at the house many times. I do not remember of seeing any drawings like patent #796,197. I saw the small pocket model of the Jones round nose reamer possibly three maybe four months, before he left the employ of the Union Oil Company. [782] I saw it first prior to the time my sister visited us. I saw Mr. Lyon, he came to our place probably in July or August. That was in 1915, yes. Mr. Youngken, myself, Mr. Jones, our little boy, and Mr. Lyon were all present. Mr. Jones told him that if he would give him two thousand dollars that he would stay out of it and not have anything to do with either side of the question, and Mr. Lyon told him he could not do that, but he would give him two hundred and fifty dollars if he would stay out of it, and Mr. Jones said he would not consider such an offer. Mr. Lyon did not say the company would give it, but he said he would, if he had to, in behalf of the company.

Cross-examination.

XQ. 70. Mrs. Jones, was there anything said in

(Testimony of Mrs. Olive E. Jones.)

that conversation about Mr. Jones and yourself coming down to Los Angeles and looking up the records in regard to these old underreamers?

A. Not that I remember of.

XQ. 71. Nothing whatever? A. No, sir.

XQ. 72. Did I ask Mr. Jones if he would testify or come to Los Angeles to testify in that case?

A. You did, and then Mr. Jones said that he would take \$2000 and stay out of it and not testify on either side.

XQ. 73. And did I not tell Mr. Jones in your presence that I came up there and that I wanted him to come down and testify in that case?

A. No, sir; I don't remember that.

XQ. 74. Had you heard the conversation between your husband and Mr. B. N. Youngken of the day before? A. Part of it.

XQ. 75. Did Mr. Jones tell Mr. Youngken that he would not come down to testify unless he was paid a thousand dollars?

Mr. BLAKESLEE.—Objected to as not cross-examination. [783]

The COURT.—Overruled.

A. I never heard that.

XQ. 76. (By Mr. LYON.) You would not state that? A. Positively.

XQ. 77. You testified in that case at Bakersfield in response to a subpoena, didn't you?

A. Yes; to the best of my knowledge.

XQ. 77. At that time you saw these models and photographs of the models and the two reamers that



(Testimony of Mrs. Olive E. Jones.)

we had in evidence at that time? A. Yes, sir.

XQ. 78. And identified them?

A. I was not asked to identify the reamers and I don't believe that I paid much attention to that. To the best of my knowledge I was not asked to identify them.

XQ. 79. You were not asked anything about when he made the— A. Yes; I saw that.

XQ. 80. And was not your attention called to two underreamers then on the floor?

Mr. BLAKESLEE.—We ask that the witness be confronted with the testimony.

The COURT.—This is preliminary. Overruled.

A. I believe they were.

XQ. 81. (By Mr. LYON.) Now, please step down from the witness stand and come here where these models are where you were looking around and attempting to identify the second Jones reamer. You observe the reamer that I now put my foot on, don't you?

XQ. 82. Isn't that one of the two we had at Bakersfield and to which you refer?

A. That I couldn't tell. [784]

Mr. LYON.—Let it be noted on the record that I placed my foot in asking the question upon Defendant's Exhibit Fred. W. Jones Reamer Type 1 as now marked in A-4 Equity, being the so-called Jones removable bowl reamer.

A. We have a model like that at home.

XQ. 83. (By Mr. LYON.) Now, to further illustrate what happened when you came down here,

(Testimony of Mrs. Olive E. Jones.)

you put your foot on this reamer.

A. That I think is his reamer, but we have a small model of this at home at the present time.

XQ. 84. Since I point it out to you, you now remember it?

A. No, sir; I remember when I came up here. But I remember that nose being his invention—this part here.

Mr. BLAKESLEE.—The witness points to the round-nose and of the reamer marked now “Fred W. Jones Reamer Type 2” in A-4 Equity.

XQ. 85. (By Mr. LYON.) You never saw any drawings like that of the drawing of patent 796,197, did you?

A. Not unless it was at Bakersfield, and I don’t recognize it now.

XQ. 86. You never saw a reamer like that there, did you?

A. If they were at the shop, I did. I don’t remember.

XQ. 87. You never discussed that kind of a reamer with Mr. Jones, did you?

A. Not that I remember of.

Mr. BLAKESLEE.—He is calling for a conclusion. He might have discussed features and not the whole.

The COURT.—Overruled.

XQ. 88. (By Mr. LYON.) What time of the year was it when Mr. Jones, as you say, was working on some drawings and you think Mr. Edward Double and Mr. Whidden were present in the office

(Testimony of Mrs. Olive E. Jones.)

of the Union Oil Tool Company at Santa Paula?  
[785]

A. To the best of my knowledge, it was May or June, 1901.

XQ. 89. How long have you been in Los Angeles this trip? A. Since Monday morning.

XQ. 90. And on how many occasions have you been at the office of Mr. Raymond Ives Blakeslee, the attorney for the defendant in this case?

A. How many times?

XQ. 91. Yes.

A. I have been in the receiving room three times, but I have never been in his own private office since I came into town.

XQ. 92. Were you not in that room where all these exhibits were on either Tuesday or Wednesday of this week?

A. No, sir; I have not been in his private office—

XQ. 93. You have seen those exhibits, however, several times, in the last year, haven't you?

A. At Bakersfield I saw them.

XQ. 94. You have talked this matter over—

Mr. BLAKESLEE.—It is indefinite which exhibits are referred to.

Mr. LYON.—We refer to the three that she has identified in her direct and cross-examination. She knows what I mean.

XQ. 95. You have talked this matter over on a good many different occasions since last June with several different people, haven't you?

A. Naturally, it has been discussed more or less.

(Testimony of Mrs. Olive E. Jones.)

XQ. 96. You have heard the discussion between Mr. Jones and Mr. E. C. Wilson and some discussions between Mr. Jones and Mr. Blakeslee and without and with Mr. Wilson present?

A. I have heard some; yes, sir.

XQ. 97. And it has been discussed to a great extent in the last week or ten days, has it? [786]

A. I haven't heard it discussed.

Mr. LYON.—We offer in connection with the examination of this witness the affidavit of the witness made on the motion for leave to take testimony, and I will read it to the witness as follows: “That she is the wife of one Frederick W. Jones and with him now resides at McFarland, County of Kern, State of California; that in the year 1901, she and her said husband resided at Santa Paula, country of Ventura and State of California, where her said husband was then employed as machinist in the shop of the Union Oil Tool Company of which one Edward Double, now president of the Union Tool Company, complainant in the above-entitled action was then foreman; that during said year 1901, her said husband did devise a certain underreamer which was constructed in said shop during said year 1901, and the general construction and combination of the parts and features of which was substantially in accordance with the drawings of United States letters patent No. 796,197, issued to said Edward Double, August 1st, 1905, for underreamers; that affiant saw said underreamer in said shop during its course of construction and likewise was present at said shop

(Testimony of Mrs. Olive E. Jones.)

when her said husband was performing work upon said underreamer; and that at all times her husband has asserted and contended that he and not said Edward Double invented said underreamer, and likewise the underreamer of the letters patent to Double sued under herein."

Mr. LYON.—That is the one that she said she never saw a drawing of or a reamer like it.

Mr. BLAKESLEE.—She did not say she had not seen a reamer like it.

A. I never said I didn't see a reamer like it.

Mr. LYON.—That is all.

Mr. BLAKESLEE.—That is all. [787]

**Testimony of John A. Richardson, Produced as a  
Witness on Behalf of Defendant.**

Mr. Richardson testifies as follows:

My name is John A. Richardson, residence Santa Paula; occupation, merchant; age, 75. I am familiar with oil well tools having worked in machine-shops since 1865, in Pennsylvania, Canada and California. Was employed in Petrolia, Canada in 1866. Did a general oil well tool business there. I know of the firm of the Oil Well Supply Company of Canada. I did not work for them. I repaired underreamers in Canada. Did no underreamer work in Pennsylvania. Was employed by the Union Oil Well Tool Company at Santa Paula and did work on underreamers there. I have seen underreamers like that represented in Figure 2161 of the Oil Well Supply Company Catalogue. I saw them in Petrolia, Canada. I saw it first in 1866. The reamer I



(Testimony of John A. Richardson.)

saw may not be just exactly the same as that disclosed in Figure 2161, but it was on the same principle. Of course there may be some improvements in it since I first saw it. I would recognize one of those reamers now if I saw it. Yes, this is one here. Witness puts his foot upon Defendant's Exhibit Oil Well Supply Company Canada 4½" Underreamer.

I commenced work with the Union Oil Tool Company in California in the year of 1900 of May. Arrived in California I think on the 26th day of April, 1900. Went to work for the Union Oil Tool Company about the 1st of May. Remained with them until they moved to Los Angeles. At present am conducting a hardware store in Santa Paula.

Am acquainted with Frederick W. Jones, having known him since my arrival in California. He was a machinist in the Union Oil Tool Company's shop at the time I went there. I worked in the blacksmith-shop as a blacksmith. I worked on underreamers. Worked on the reamers known as the Double underreamer. Did repairs to Austrian underreamers and Swan underreamers. I used to [788] make the cutters, spring and the key for underreamers. The reamer consists of a plunger, spring and a body. The cutters were spring actuated and expanded so as to cut a larger hole in the well. The cutters had a shoulder on the inside to close over the bottom of the body. Probably a dozen or so of those reamers were made while I was in the shop. I worked on all of them. On new work I used to get what we called a "working draft" and

(Testimony of John A. Richardson.)

worked to that. By draft I mean a drawing. I don't know who had to see the drawings—I used to see Mr. Jones making the drawings. He made the drawings in the office—that is in the office of the shop—Mr. Double's. I talked with all the men in the shop about those reamers, namely, Mr. Thomas, Mr. Jones, Mr. Youngken and probably with Mr. Double. Also with Mr. Dinger. I don't remember of receiving any instructions from Mr. Double in regard to that underreamer. Mr. Jones was working on the different parts of the underreamer. I did not see any reamers of that type made in the Union Oil Tool Company's shop prior to the time I saw Mr. Jones making the drawings. I was a sort of a general man in the blacksmith-shop and all the different men would bring different work to do. Mr. Double would generally bring me the new work to do. Double was the boss of the shop.

Q. 105. To the best of your recollection who was it that gave instructions in the shop as to the actual shop work in the running of the shop and executing repair jobs and making such alterations and changes as were found in the reamer work?

Mr. LYON.—We object to that on the ground that it calls for a conclusion and not for a statement of fact.

COURT.—Overruled.

A. Well, I was a kind of a general man in the shop, and all the different men, all the different machinists would bring me a job to do and I would do it. And new work Mr. Double would [789] gen-

(Testimony of John A. Richardson.)

erally bring me the new work, and Dinger, and the machinists all of them would bring jobs for me to do, and I would do it without any instructions from anybody.

I have talked and discussed the underreamer with Mr. Jones. It was the drawings I saw Mr. Jones making in Double's office which I used as a guide in making the parts of the Double underreamer. The first reamer was condemned as not workable. The cutters were left in the hole. For a time I made the cutters and then Mr. Dinger made them.

Q. 121. In making up the first of those reamers and using the drawings which you say Mr. Jones made in the office, please state to what extent, if at all, your work followed those drawings.

A. Well, I got drawings for nothing but the cutters. The mandrel and spring and key did not require drawings.

I did not need drawings to make the mandrel and the spring. I did no work on the reamer body itself. When changes were made in the design I was simply given the size. They did not require drawings.

Jones showed me a model—a pocket model of his reamer—in the shop there. It was about six inches long or four inches long probably. It was like "Defendant's Exhibit Fred W. Jones Reamer No. 2," namely, the round nose Jones' reamer. It was during the summer of 1901 I think he showed me this model. It was while Jones worked in the shop. I criticized it somewhat as I always objected to a reamer of any kind that the cutters were hung on a spring.

(Testimony of John A. Richardson.)

It was not until after Jones left that shop that he made the working size model in accordance with that pocket model. It was while he was in the Skinner shop—probably 1902. The reamer shown in Double's patent No. 796,197 is like the original I saw in the Union Oil Tool Company's shop in 1901. I made the cutters of the [790] original reamer that was like that drawing. Mr. Dinger forged the body. I had made springs and mandrels for reamers before. Not so many of them in that shop, however. I don't know that I saw the particular draft made that was given to me. I saw all the drafts of the body and a blue-print of reamer would be a different thing from the working draft which I had to make my cutters.

Q. 165. Can you state of your own knowledge who made that draft that was brought to you?

A. Well, Mr. Double or Mr. Jones I saw working at it in the office.

I don't remember that I talked with Jones about the Canadian reamer prior to making the reamer over. Probably discussed, what I know of them, in a general way with him. I know Mr. D. Whidden in about 1900—he was working on a pipe-line. He made his headquarters in an office across the road from the shop. I also know Mr. William B. Naugle who worked in the Union Oil Tool Company's shop at that time. I don't know that I ever saw Edward Double making any drawings in that shop. I do not know that he could make drawings. I do not know that he had ever received any instructions in making drawings. I made the forgings of the cut-



(Testimony of John A. Richardson.)

ters of the first underreamer like "Complainant's Exhibit Double Patent." The shoulders I made and to which I refer were the shoulders 18 of the drawing. The part 29 in figure 11 of these drawings was not forged—it was not my part of the work.

Cross-examination.

XQ. 188. (By Mr. LYON.) I show you again Complainant's Exhibit Double Patent 796,197, and ask you to look at the drawings.

You stated here that you had never seen these drawings before to-day. Is that true?

A. I probably seen them before, but I never paid any attention. [791]

XQ. 189. When did you ever see them before?

A. That I couldn't say. I had better answer that I have not seen them.

XQ. 190. Have you ever seen that before, have you not? A. No.

XQ. 191. You are not sure you never saw them before?

A. No; not in that form. I saw the pieces before they were assembled.

XQ. 192. You never saw this patent before to-day?

A. No.

XQ. 193. Did you make an affidavit in this case swearing to the same before a notary public by the name of Crawford, on the 30th of August, 1915?

A. Yes.

XQ. 194. In that affidavit—

A. If he had that draft there I have forgotten it.

XQ. 195. In that affidavit you said that during the



(Testimony of John A. Richardson.)

spring and summer of the year 1901 certain sketches or drawings were made at said shop of features of an underreamer device for enlarging oil well holes, which sketches or drawings show features of underreamer construction displayed in the drawings in United States Patent No. 796,197, issued August 1, 1905, to Edward Double; did you?     A. Yes, sir.

XQ. 196. Then you must have had this patent before you at that time for making this affidavit?

Mr. BLAKESLEE.—Objected to as argumentative.

The COURT.—The objection is overruled.

XQ. 197. (By Mr. LYON.) You had a copy of this patent before you when you made that affidavit?

A. I have forgotten if I did. [792]

XQ. 198. You cannot remember now whether you saw those drawings on August 30, 1915?

A. If my affidavit says that I did, why, I did.

The office in which I saw Mr. Jones making those drawings was in the corner of the shop. I don't remember if it was in 1900 or 1901 that I saw Mr. Jones working on those drawings in that office. To the best of my recollection Jones was still in the employ of the Union Oil Tool Company's shop when that first reamer came back without the cutters. I knew Walter Weekly, yes. He was foreman of the machine-shop. I don't know what part of this first reamer he made. Jones was employed as a common machinist at that time. I think Jones worked in Mr. Skinner's shop in 1902 just before he left the employ of the Union Oil Tool Company. I do

(Testimony of John A. Richardson.)

not know what Mr. Jones did after he left the Union Oil Tool Co. shop. I have forgotten whether he then left Santa Paula. He worked in the Skinner shop after he left the employ of the Union Oil Tool Company. Think Jones worked in the Skinner shop maybe a month before he left the employ of the Union Oil Tool Company. Don't know that he put all his time in there. I saw him at that shop.

**Testimony of Edward Double, for Complainants.**

Testimony of EDWARD DOUBLE, called as witness on part of complainant, testified as follows:

My name is Edward Double; president of the Union Tool Company.

Q. 1. (By Mr. LYON.) You are the Edward Double who is president of the Union Tool Company and who has heretofore testified in this case?

A. Yes.

Q. 2. You have heard the testimony of Mr. Fred W. Jones given in this case? A. Yes, sir.

Q. 3. I show you Complainant's Exhibit Double Patent No 796,197. You are the Edward Double named therein, are you? A. Yes. [793]

Q. 4. Do you know who first conceived the construction of an underreamer as therein set forth and described?

Mr. BLAKESLEE.—Objected to as calling for a conclusion and requiring absolutely a conclusion as to whether the conception was commensurate with what is there. It is not the proper method of proof and not the method of establishing the origination of the patent.

(Testimony of Edward Double.)

The COURT.—The objection is overruled.

A. I did.

Q. 5. State the circumstances under which you conceived that invention, and after its conception what you did therewith.

A. I was employed at Santa Paula as foreman of the Union Oil Tool Company's shop, and conceived the idea on June 8, 1901. I started in to build the reamer. I made all the sketches and all the drawings or so-called drawings there were to manufacture the reamer, and delivered them to the shop and instructed all the men, and the reamer was built absolutely under my instructions from start to finish.

I testified in the interference suit with Edward E. Mills. That was in 1903. At that time we had all time-sheets and complete records of the job for making that first reamer. I do not know where those records are now. I have not made a search for them but they may be found if we made a search of the Tool Company's office. They were produced when I testified in the interference. Jones had nothing whatever to do with giving instructions to anybody in the shop. At the time that this particular reamer like the drawings of patent No. 796,197 were made in the shop of the Union Oil Tool Company at Santa Paula, Jones was working down in George L. Skinner's shop in Santa Paula. He was in the employ of the Union Oil Tool Company.

I first explained the reamer like patent No. 796,197 to Mr. W. F. Dinger and Walter Weekly. They were employees of the Union Oil [794] Tool Com-

(Testimony of Edward Double.)

pany's shop. Dinger was a blacksmith and Weekly was a machinist. I brought them into my office and started them to build the reamer and gave Mr. Dinger instructions to make the forgings and also instructed Mr. Weekly on some of the machine parts on the body of the reamer. Jones did no work on that reamer to the best of my knowledge. That reamer was completed some time in the latter part of July, 1901. Jones left our employ about the 15th of July, 1901. The reamer was sent out in the latter part of July, 1901. At that time Jones was not in our employ nor was he in our employ when that reamer was returned from its first use.

I believe Mr. Richardson made some of the small parts of the reamer shown by patent No. 796,197. He received instructions from myself.

Jones did not show me the small pocket model of an underreamer during the years 1900 or 1901.

I had seen a round-nose underreamer like the Jones' round-nose underreamer before the commencement of this trial during the latter part of 1901 in George L. Skinner's shop. That was the first time I ever saw such a reamer or model of that reamer, or had any information in regard to it. That was in about August, 1901. At no time prior to Jones leaving our employ did I ever hear him say that he had invented any kind of an underreamer. Jones did not assist in any manner in designing or creating the underreamer shown or described in "Complainant's Double Patent No. 796,197." I have seen a reamer like Jones' reamer



(Testimony of Edward Double.)

with the removable bowl, yes. In the last part of 1902 was when I first saw it.

Q. 43. Under what circumstances and where?

A. Mr. Lyon as my attorney in the patent cases called my attention to one of such reamers at the R. H. Herron Supply Company, and we went down there to look it over.

Q. 44. That was in the city of Los Angeles, California? A. Yes. [795]

Q. 45. Had you ever seen any such Jones' reamer prior to that time? A. No.

Q. 46. Had you ever had any conversation with Mr. Fred W. Jones in reference to such underreamer prior to that time? A. No.

There was no such catalogue in the office of the Union Oil Tool Company which disclosed the Canadian underreamer. The first I saw it it was called to my attention the latter part of 1902 in Mr. Lyon's office. Mr. Lyon asked me then if I had ever seen the Canadian reamer. That is the first time I saw Figure 2161 of that catalogue. The blue-print like cut No. 2161 Mr. Lyon obtained at my request. Obtained same from the Oil Well Supply Company of Pittsburg in the latter part of 1902.

Mr. LYON.—We offer in evidence blue-print "Complainant's Exhibit Oil Well Supply Company's blue-print of 1902."

I wished that information in order to ascertain how the reamer worked. I couldn't tell Mr. Lyon how it worked, from the catalog, and wanted to get further information. The writing on it, "not recom-



(Testimony of Edward Double.)

mended for cable tools" was on this blue-print when I received it.

I received no suggestions from Fred W. Jones concerning design of underreamer "Complainant's Exhibit Double Patent No. 796,197" or "Complainant's Exhibit Double Patent," being the patent in suit, No. 734,833.

Skinner's shop where Mr. Jones worked was just across the railroad, about a city block from my shop.

I am able to fix the date of my conception of the invention as June 8, 1901, as that was my testimony in the interference case between Mills and myself. It at that time was very fresh in my mind. I will state under oath that Jones was not present in that [796] office when I conceived the idea of that underreamer on that date.

I had been working on underreamers for some time past and on that particular day I conceived the idea of the underreamer. I made up pencil sketches of an underreamer. I believe I can make sketches of that reamer now.

The COURT.—The Court here takes a recess for five minutes during which time the witness is engaged in making a sketch.

I herewith produce a sketch. I made a number of sketches. I cannot say how many.

Q. 84. Well, were the sketches that pertained to this matter all contained in one view or figure, as we say in drawings, or were they in fragments, scattered over the sheet?

A. Oh, they would naturally be in different views.

(Testimony of Edward Double.)

Mr. BLAKESLEE.—We would ask the answer be stricken out as not responsive, what the custom is.

The COURT.—It will be stricken out. You are asked about just what you did at that time.

The WITNESS.—I don't recall, to the best of my knowledge, just the number of sketches I made on that day.

I know that I made a sketch on that day showing all the parts together like this. The sketch was probably destroyed or misplaced. Have not attempted to look for the sketches since. That is since July or August of 1901. Had made sketches of underreamer prior to June 8, 1901.

Had never made any sketches of underreamers before I met Frederick W. Jones. I did not submit the sketch I made on June 8, 1901, to Mr. Jones. He did not see it that day. I have discussed it with him later. Probably thirty or sixty days after that. I simply showed him what I had devised. Yes, I did discuss it within thirty days.

Q. 99. Why did you show him what you had devised? [797]

A. Well, he was in my employ, and we was building the reamers, and naturally the conversation would drift along those lines.

Q. 110. Nothing was done with those sketches in the meantime then?

A. Nothing was done with those sketches until they were put into the shop and explained to the workmen.

XQ. 111. And in explaining to the workmen,

(Testimony of Edward Double.)

didn't you discuss it with the workmen?

A. Certainly did.

XQ. 112. And that did not occur for 30 to 60 days, is that correct? A. Approximately 30 days; yes.

I conceived the idea of a central spreading bar, with tilting action of the slips, making the key-seat larger than the key was to allow the cutters to partake of the tilting action so as to collapse around a central spreading bar.

I believe that the tilting action was new with me. I had seen the Brown device before that time. It had a different tilting action. The Brown device had a pendulum-like action of the cutters. The Defendant's Exhibit Model Brown Underreamer looks similar to the Brown reamer, yes. The Brown device that I saw previous to making those sketches on June 8, 1901, are constructed substantially in accordance with Defendant's Exhibit Specification U. S. Patent #687,296. Later on my interests in the Union Oil Tool Company made a swap for certain interests in that Brown patent, in exchange for interest in the Double patent.

XQ. 131. The part which I now mark small a on the sketch, namely, inwardly projecting portions from what I mark small b was known to you before the time you made those sketches on June 8th, 1901, were they not? [798]

A. They were.

The COURT.—Part marked small a?

Mr. BLAKESLEE.—Yes.

The COURT.—What did you say about small b?

(Testimony of Edward Double.)

Mr. BLAKESLEE.—Inwardly projecting from the part marked b.

XQ. 132. (By Mr. BLAKESLEE.) And the part which I now mark small c surrounded by the part marked small d, which I take to represent a coil spring, were parts known in oil well practice and known to you before June 8th, 1901, were they not?

A. They were.

XQ. 133. And the part I mark small e and which I take it to be a key connecting the part small c with the parts small d, which I take it represents small cutters, was known by you and known in oil well practice before June 8, 1901, was it not?

A. Not in that particular form of construction,—not in that particular combination.

XQ. 134. My question pertained to the key itself as a part for connecting cutters with a spring actuated rod, key small c, such a key was known for like use, was it not, prior to that date? A. Yes.

Springs, rods and tees, those kind of things were known to me and in oil well practice but not used in combination like I used in mine. The rod with the slot in it for a key and the central part or extension of the body over which the cutters tilt were not known to me before. I was acquainted with the Swan reamer prior to that time. I have seen the so-called Swan patent. In referring to Defendant's Exhibit Swan Patent #683,352, the parts in Figure 3 marked A-3, will say that that form or hollow, slotted extension upon which the cutters ride in the Swan reamer in collapsing and expanding the cut-



(Testimony of Edward Double.)

ters, was known to me before June 8, 1901. [799]

I made a statement about not having seen the Swan patent prior to June 8, 1901. I have seen the reamer but not the patent. The Swan underreamer was well known in the art prior to June 8, 1901, and I was familiar with it.

The difference between the extension, of my sketch, and the corresponding part, which is a 3, in the Swan Patent Exhibit and the part shown in metal in Defendant's Exhibit Swan Reamer is that in my reamer the central spreading bar was a straight bar. The slips contracted on the end and spread over the end of the underreamer. In the Swan they were wedge-shaped, and the slips of the Swan had no tilting action on the key as mine had. My reamer had a tilting action, the cutters tilt on the key so as to allow the cutters to close around the end of the underreamer so as to collapse. It will be utterly impossible for my reamer to work by putting a key through there without the key-seat, somewhat larger than the cutters, to allow the slips to partake of the tilting action in the key. I did not borrow that tilting action from the Brown. The Brown has no key-seat in the cutters.

In my reamer, I had a spring carried rod with a key going through the rod, and the key laying in the key-seat of the cutters. The key-seat in the cutters was made somewhat larger than the key so as to allow the reamer to partake of the tilting action and collapse.

Now, then, the Brown reamer did not have any



(Testimony of Edward Double.)

key-seat or any spring carrying rod to carry the cutters. The spring actuated rod and the key and key-seat were well known to me but not used in the combination that I used them. The Swan reamer key-seats fit the key tightly and don't allow any tilting on the key. That was the essential difference between the Swan and my reamer.

Without the engagement of the key-seat in the cutters you would not be able to get the pendulum in my underreamer.

XQ. 151. (By Mr. BLAKESLEE.) Well, let us assume that to be a fact, and put it this way: Assuming that the cutters in the Brown reamer were so suspended that they could swing and the [800] cutters of your alleged conception of June 8, 1901, were so suspended that they could swing, will you please state what difference in principle you evolve between the swinging action of the Brown cutters and the swinging action of your cutters?

A. I don't think it would make a satisfactory job.

Mr. BLAKESLEE.—That answer is not responsive, your Honor, it does not refer to any difference.

The COURT.—Just a difference in the result, in the action.

Mr. BLAKESLEE.—I want to know what the distinguishing difference is from his viewpoint.

The COURT.—Answer the question further.

The WITNESS.—Give me the question.

(Question read.)

A. My cutters swing on a key and the Brown cutters swing on a bracket—I don't know what you

(Testimony of Edward Double.)

would call that center piece in the Brown.

XQ. 152. (Mr. BLAKESLEE.) That is the only distinction pertaining to principle that you wish to make between the swinging cutters of the Brown reamer and the swinging cutters of your alleged conception? A. Yes.

Some of the features of patent #796,197 are in patent #734,833 are embodied in the other. Some of the features embodied in one are embodied in the other. In pointing out any differences in principle or essential mode of operation as between those two patents, I will say, that in patent 796,197 there is a removable end block. Removable block is number 12. In patent #734,833 the block in the reamer is solid and there are dovetailed ways cut on the sides of the reamer. Those dovetailed ways are part 9.

XQ. 160. I call your attention to the specification of this patent as follows, on page 1, in the second paragraph, the [801] right hand column: "As shown, this end block 10, is provided with the hollow upward extension 10', extending up within the central bore 4, or shoulder 4' abutting against the shoulder 10'." Will you please show me where the part 12 is joined with part 10'?

A. Yes. This is joined with 10' (indicating). This is one solid block from here up to here (indicating); open to this pin through here, holding that in the reamer (indicating).

XQ. 161. And that pin entered into these openings in the legs 3, is it not? A. It is.

XQ. 162. Then this end block is not separable from the part 10', is it?

(Testimony of Edward Double.)

A. Yes, it is separable from 10'. The body here (indicating), is that what you mean?

XQ. 163. 10'.

A. 10', it is this body here (indicating).

XQ. 164. And is that one piece or two?

A. This is one piece down here (indicating).

Mr. BLAKESLEE.—I object to the witness referring to that.

Mr. LYON.—He has a right to look at the specifications to get what the particular numerals refer to.

Mr. BLAKESLEE.—I don't object to that, but I object to—

Mr. LYON.—He has a right to refer to that.

The WITNESS.—This piece runs from here down to here, is one piece, and in this body through this hole here to this point (indicating).

XQ. 165. (By Mr. BLAKESLEE.) Then that pin likewise holds part 10' as well as part 12, is that correct?

A. 10', is that referred to in the specification?

XQ. 166. I mean the part the line leads to.

Mr. LYON.—It is a question of what he refers to.  
[802]

Mr. BLAKESLEE.—He ought to know without referring to the specifications, what he invented.

Mr. LYON.—You can tell, I suppose, every one of these patents yourself, you haven't seen for years, what each reference refers to?

Mr. BLAKESLEE.—I think I can.

Mr. LYON.—I doubt it.

Court adjourns.

(Testimony of Edward Double.)

(By Mr. BLAKESLEE.)

XQ. 167. You were attempting to inform me yesterday when the session closed—

The COURT.—How much longer is this going to take, the expert part of it?

The BLAKESLEE.—What I intend to do briefly is to get a clear statement of what the exact conception was that this man had,—what his invention was,—and to fix that by tracing its relation to what had gone before, to his knowledge; and the experting part I think can be done on argument. I do not think it will need any further explanation in view of the record in the case taken by the examiner.

The COURT.—I will require you to conclude that within the next half hour.

Mr. BLAKESLEE.—However, I take it, that will not limit me to going farther in the development of this conception—

The COURT.—No.

Mr. BLAKESLEE.—(Continuing.) —and leading up to the invention in suit. This, of course, is not the specific invention in suit.

The COURT.—The matter of the conception, you will not be limited in that way, regarding these discussions right around the time of the invention. I do not think you are going to get anything that you cannot show in half an hour regarding what his conception was. [803]

Mr. BLAKESLEE.—Anything pertinent to the subsequent steps, of course, would be another question, that is, when he made the first device, and so forth.

(Testimony of Edward Double.)

XQ. 168. (By Mr. BLAKESLEE.) You were attempting to point out to me yesterday just what parts of the drawing shown in patent 796,197—

The COURT.—I have not that before me. Have you got a copy?

Mr. BLAKESLEE.—Yes.

XQ. 168. (Continuing.) were connected with the part marked 12, in figure 2, that is, connected together in one unitary construction. Can you inform me as to that?

Mr. LYON.—I object to the question as ambiguous, uncertain and unintelligible. The difficulty with it is going to be when counsel attempts to make any use of the evidence in the argument of the case, it does not show to what it refers. Does counsel refer to the underreamer as built, or the conception, or the conception of Mr. Double at first, or to the showing of this patent?

Mr. BLAKESLEE.—I think the question speaks for itself.

The COURT.—If the witness understands the question—

Mr. BLAKESLEE.—That is the criterion.

The COURT.—Objection overruled.

The WITNESS.—The faces marked 12 is the faces that these cutters expand around the end of the bridge block.

XQ. 169. And are there any other parts shown in that drawing which are the same piece with the bridge block?

A. Why, the pin goes through the bridge block



(Testimony of Edward Double.)

and would secure the bridge block in the reamer.

XQ. 170. Well, is the part to which the line leads in figure 3 marked No. 10', directly—

The COURT.—Figure 3? [804]

Mr. BLAKESLEE.—Yes.

XQ. 170. (Continued.) Directly solidly connected with the part having the faces, 12, or is it separate, or separable?

A. We have complete working model, of the wooden model in this case and I would request the attorney to explain to me on the wooden model what he refers to.

XQ. 171. I asked you what you understood from that drawing when you swore to that application for this patent, and what your understanding of the patent now is from this drawing.

A. I can make a complete explanation of every part of that reamer to you.

XQ. 172. I ask you to answer the question which I put last, and which is unanswered.

The COURT.—If you want to use the wooden model to answer, if you can make the answer plainer to the court, you have a perfect right to do so.

The WITNESS.—Read the question.

(Last question read by the reporter.)

A. The faces, 12, and the blocks, 10, are one and the same piece, which I would like to show on this model, as I understand the question.

Mr. BLAKESLEE.—We suggest, your Honor, that the witness should know from his own knowledge how this is put together.

(Testimony of Edward Double.)

The COURT.—It might educate the Court if he can do it that way better.

Mr. LYON.—Step up and show it to the Court.

Mr. BLAKESLEE.—Does it not educate the witness?

The COURT.—I think if he is not educated by this time he will not be, in view of what is established.

The WITNESS.—This point marked 12 represents the spreading faces of this block, or bridge, this part 10. [805]

The COURT.—10' is what he asked about.

Mr. BLAKESLEE.—10'.

XQ. 173. (By Mr. BLAKESLEE.) The line leads from 10'.

The WITNESS.—Doesn't 10 there (indicating) lead to this part here (indicating), or lead to the body?

XQ. 174. The line from 10' leads right to that point and dies away and there stops in the part I am asking about.

A. This (indicating) is one piece, the bridge block.

Mr. BLAKESLEE.—Let it be shown on the record the witness, by referring to tag on exhibit, Defendant's Exhibit Wooden Model of Double Reamer Patent 796,197, answers the question.

XQ. 175. (By Mr. BLAKESLEE.) Now, in accordance with your original conception, was it possible to remove the cutters from the key and the spring actuated rod, without detaching that block, having the faces 10 and the part 10'?

A. It was not.

(Testimony of Edward Double.)

XQ. 176. In the reamer of this patent and of your conception, as you tell us about it, the ends of the cutters suspended from the key were supposed to slide along the key as the cutters tilted; is that not so?

A. In which direction do you mean, slide?

XQ. 177. Well, they would slide in one direction if the cutters were collapsing, and in the other direction if they were expanding, wouldn't they?

A. Yes, they had the tilting action as the cutters collapse; they had the tilting action on the key.

XQ. 178. My question was one which admitted of the tilting action, but I asked you if the ends of the cutters which were suspended by the key did not slide on the key as the tilting took place.

A. Which end do you mean? Point out on the model the end that you mean slid on the key. [806]

XQ. 179. Didn't one end of each cutter connect with the key, was it not supported by it?

A. Yes, cutters were supported by the key.

XQ. 180. And did not that end slide on a key as the cutter tilted?

A. Which end, the top end or the bottom end?

The COURT.—You mean slide up and down, or in and out?

XQ. 181. Slide on the key in any manner.

A. They would slide in and out so as to allow the cutters to partake of a tilting action around this central spreading bar of the reamer.

XQ. 182. And that was true of the upper ends of the cutters of the Brown reamer, was it not?

A. The Brown had no key for the cutters to slide on.

XQ. 183. However, the upper ends of the cutters did slide upon the parts you call the brackets in the Brown device; is that not so? A. Yes.

I first discussed this reamer with Mr. Dinger. That was approximately thirty days after I conceived that reamer. As Mr. Dinger did the first work on the reamer he was naturally the first man I would discuss it with. [807]

EDWARD DOUBLE, recalled—Cross-examination resumed.

XQ. 186. And when did you first discuss it with Mr. Jones?

A. To the best of my recollection, during the month of July, 1901. I next discussed it with Mr. Weekly, a few days after discussing it with Mr. Dinger. It was sometime during July, 1901, that I conceived the underreamer disclosed in Patent #734,833.

In regard to my testimony yesterday I wish to state in regard to that conception of June 8, that I had that testimony confused with the conception date and the manufacturing date. The manufacturing was started July 8, and the conception date was some time during the month of June.

XQ. 199. Can you state the circumstances surrounding your alleged conception of the subject of this patent 734,833, how came it about that you hit upon that conception?

A. I finished, practically finished up the concep-

(Testimony of Edward Double.)

tion of my first reamer, as the model just explained, and it was a hard thing to manufacture—hard proposition to manufacture, and I conceived the idea of cutting out the sides and putting in these dovetail slip-ways in making the spreading bar, or bridge block solid with the main part of the reamer. That is during the latter part of July, 1901.

The COURT.—Just a moment. Those changes were then that you made this dovetail to direct the cutters up and down and changed this spreading block? A. Yes, this was the latter part of July.

The COURT.—Those are changes.

The WITNESS.—Those were changes made.

It was between the middle and the latter part of July that I made those changes as shown by conception disclosed in patent #734,833. Shortly after my ride through the fields with Mr. Stewart [808] in which underreamers were discussed I hit upon the real idea of the underreamer while in my office.

We offer in evidence the sketch made by him (Mr. Double) yesterday in pencil on a yellow sheet of paper and ask that same be marked "Defendant's Exhibit Double Reamer Sketch of 1916."

XQ. 207. (By Mr. BLAKESLEE.) In connection with this Brown reamer, are we to understand you consider that that was in certain respects defective? A. I consider it an impractical tool.

XQ. 208. And yet, subsequently to that time, in the year 1902, your company traded a half interest in patent No. 687,296, which was issued exactly a month after your application for the patent in suit



(Testimony of Edward Double.)

was filed, for a half interest in the patent in suit; is that not correct?

A. I don't think it was our company; it was myself personally.

XQ. 209. Please state the circumstances.

A. They had brought this model or had shown me that model in the St. Elmo Hotel, and I had looked it over, and was not satisfied it was a practical or workable tool, and went and got out this reamer of my own, and after I had gotten out this reamer, they threatened me with suit. And in order to avoid any litigation, and not knowing what the future of the reamer business was going to be, that we compromised and I assigned them a half interest in the application I had pending for a half interest in their application.

Mr. BLAKESLEE.—In this connection we offer in evidence certified copy from the digest of the United States Patent Office of all assignments, agreements, licenses, et cetera, pertaining to the patent in suit, and call particular attention of the Court— [809]

Mr. LYON.—Wait a minute. We object to counsel reading in the record and stating what the document purports to be. Let me see a moment.

The COURT.—You will have to wait until it is admitted before you elaborate on it.

Mr. BLAKESLEE.—We offer in evidence as showing the transaction which took place pertinent to the Brown patent which has been issued, and the Double invention.

(Testimony of Edward Double.)

Mr. LYON.—We object to this as being fragmentary, and incompetent and inadmissible for any purpose in this case. Now, if they want to prove them they must get certified copies of the original file and produce them. Their whole transaction is set up in the bill of complaint, but this document is simply an abstract showing that certain instruments were recorded, and it is mere recital, and there is no statute authorizing such a certificate by the commissioner of patents at all. He is permitted to make certified copies of any papers which are of record in his office. This is not such a paper. This is just an abstract of portions of papers, in other words a digest. And the only way they can prove those, if they want to prove them that way, is to call for the original or have certified copies of the file made.

The COURT.—Objection overruled.

Mr. BLAKESLEE.—As a matter of fact, the bill of complaint does not set out the Brown assignment at all. We would ask it be marked certificate of digest of patent office records re Brown patent.

XQ. 211. (By Mr. BLAKESLEE.) I want to know what you consider you did with respect to your second conception of July, 1901, that you had not done with respect to your conception of June, 1901, in the reamer line. [810]

A. Well, I incorporated this solid tongue spreading bar, also tapered dovetail slipways in combination with the key; and also made it possible to make the bottom end of the reamer solid, doing away with the removable end block.

(Testimony of Edward Double.)

XQ. 212. That bottom portion which you say you made solid is referred to in the patent as "hollow slotted extension," is it not? A. Yes.

XQ. 213. And as far as it being made solid with the body was concerned and as far as it being a hollow slotted extension is concerned, those features were both present in this Swan reamer known to you at that time, were they not; is that not so?

A. They were not.

XQ. 214. Please state the difference.

A. On my hollow slotted extension the dovetail on the outside was the opposite direction, and the opposite angle of what the Swan was; and my central spreading bar was a straight or parallel bar, where the Swan reamer was a tapered bar. On the Swan reamer he had no projection on the cutters so as to allow them to come around and lock against the spreading bar of the reamer and hold the reamer in back against the casing while the reamer was going down through the casing.

The COURT.—You were not asked about the cutters. He simply asked about the difference in dovetail.

The WITNESS.—(Continuing.) The dovetail in combination with the hollow slotted extension was different than the Swan.

XQ. 215. (By Mr. BLAKESLEE.) My question was as to whether there was a hollow slotted extension solid on the body of this July, 1901, conception, in comparison with a hollow slotted extension solid

(Testimony of Edward Double.)

on the body of the Swan reamer, and in that respect were they not identical?

A. They were not identical. [811]

XQ. 216. Both had hollow slotted extensions, had they not? A. Both had hollow slotted extensions.

XQ. 217. The Swan reamer as well as the reamer you proposed in July, 1901, had slips, or cutters, guided by means of dovetails in connection with dovetail-ways on the hollow slotted extension or on the lower end of the body. Is that not correct?

A. Yes, they had cutters mounted on the hollow slotted extension.

XQ. 218. And they both were guided by means of flanges or dovetails co-operating with the flanges or dovetails on the lower end of the body; is that not correct? A. They were.

I was not acquainted with the O'Donnell and Willard underreamer prior to my invention of my reamer. I have since seen it, but have not made a personal examination of it. Not to the best of my recollection have I been on the property of the Fidelity Oil Company prior to June 1, 1901.

XQ. 221. Have you since that time seen patent issued to O'Donnell & Willard, No. 762,435?

The WITNESS.—If I could see where this was—

Mr. BLAKESLEE.—I have not suggested to him anything he knew before.

Mr. LYON.—He never saw this, he said.

The COURT.—Objection overruled.

Mr. BLAKESLEE.—I want to show if he followed this in its conception.

(Testimony of Edward Double.)

Mr. LYON.—He said he never saw it before.

XQ. 222. (By Mr. BLAKESLEE.) Copy of which I now hand you. A. I had.

XQ. 223. Prior to June or July, 1901, had you seen any device [812] substantially in accordance with the drawings of that patent? A. I had not.

XQ. 224. Had any disclosure of it come to you in any way? A. No.

It is my best recollection that I first met Mr. O'Donnell after removing our shop from Santa Paula to Los Angeles, which was the latter part of 1901 or the early part of 1902.

Mr. Jones was never nominally in charge of the shop during my administration. Mr. Walter Weekly was sometimes put in charge when I would leave the shop.

XQ. 234. You were assisted considerably by Mr. F. W. Jones, after you came to that shop, were you not, in matters of shop detail and management?

A. I was not.

XQ. 235. Did not Mr. Jones instruct you how to make sketches and drawings for shop work?

A. No.

XQ. 236. Where did you obtain your instructions to make sketch drawings?

A. I picked it up myself from time to time.

XQ. 237. You had not done much of it before you came to that shop, had you?

A. No, not very much; only pencil sketches.

XQ. 238. Was there anybody in that shop who did the jobs of drafting as required besides Mr.



(Testimony of Edward Double.)

Jones?      A. Nobody to my recollection.

XQ. 239. He was rather relied upon, wasn't he, when those occasions arose?      A. He was not.

The underreamer exhibit in June, 1901, was my first invention.

The reason I did not apply for patent on reamer #796,197 until I had applied for patent on #734,833 reamer was I had supposed [813] after filing my first application that I had covered all the points in both applications, but Mr. Lyon suggested filing additional application to cover the removable end block features which were not covered in the first application. In other words, the claim in application in #734,833 did not cover all the parts of the first reamer I manufactured. Patent #734,833 would not cover some of the features of the first form. ' It would not cover the removable end block.

XQ. 247. (By Mr. BLAKESLEE.) Well, please state a little more definitely, how you understood the removable hollow slotted extension would not be covered in the application or in the patent to issue on the application made, as filed?

A. Mr. Lyon had explained to me that was a different application, a different way of putting the block in, and suggested making the application, which I did.

XQ. 248. In other words, you understood that one patent was to be for the solidly attached hollow slotted extension, and the other was to be for the removable hollow slotted extension; is that correct?

A. Yes.

(Testimony of Edward Double.)

XQ. 249. Now, how soon did you get to work on a reamer like that of patent 734,833 in suit, namely, the one which you say you conceived in July, 1901?

A. Immediately after the completion of the first reamer.

It took probably three or four weeks to complete the reamer in suit. Started about the first of August. Tried out immediately upon completion. From that time on we have been manufacturing continuously.

We have made some changes on that reamer since that time. Some improvements. I never saw one of the Oil Well Supply Company's catalogues showing cut #2161 until Mr. Lyon called my attention to it.

That was in 1902. [814]

I don't know whether the Canadian reamer cutters tilt or swing, according to their drawing. From the cut I cannot tell whether the cutters would tilt or swing. Looks as though these cutters would swing instead of tilt. It looks as if the pin going through that central bar went through both cutters.

XQ. 271. In other words, you would make it out that that pin was a fixed center for the cutters to swing on; is that it?

A. Yes, like a pair of scissors would be pivoted.

XQ. 272. Then the difference between that and tilting concerns the moving or sliding of the cutters on a key. A. Yes.

XQ. 273. Is that it? A. Yes.

XQ. 274. Now, as a matter of fact, it was prior to

(Testimony of Edward Double.)

the time that you had your second reamer conception that you saw a Jones round-nose underreamer like Defendant's Exhibit Wooden Model of Jones Underreamer; is that not so?     A. It is not so.

XQ. 275. Can you place, a little more definitely, the time that you first saw such Jones round-nose reamer?

A. I believe I placed the time yesterday afternoon at approximately the month of August.

XQ. 276. In other words, you would make it substantially two months before the 26th of October, 1901, when you applied for patent No. 734,833; is that correct?     A. Approximately so; yes.

XQ. 277. It occurred to you upon seeing that, didn't it, that the dovetail action of the body and the cutters in that Jones round nose reamer was a good thing?

A. It did not, for I was cutting out my dovetails before I seen the Jones underreamer, on my underreamer. [815]

XQ. 278. But, as a matter of fact, you had not started work on any Double underreamer with dovetails before you saw this, had you, before you saw this Jones, had you?

A. To the best of my knowledge, I had.

XQ. 279. Those times were very close together, were they not?

A. From the start of my dovetail reamer to seeing this round nose reamer?

XQ. 280. The time of first making your reamer

(Testimony of Edward Double.)

734,833 and the time of your first seeing this Jones round nose reamer.

A. Yes, the time was approximately close.

XQ. 281. You couldn't say whether it was a day, could you, or within the space of a week, or three days, or how much?

A. No, I couldn't state approximately positive.

XQ. 282. You fix it in your mind, do you not, as being practically coincident in point of time?

A. It was after Jones had left the employ of the Union Oil Tool Company.

XQ. 283. Did you go out with the first reamer with the detached hollow slotted extension on the occasion of its attempted use in the field?

A. To the best of my knowledge, I did.

XQ. 284. Now, are you able in any way to definitely fix that time?

A. That was the latter part of July, 1901, to the best of my information.

XQ. 285. Had not Mr. Jones left the shop of the Union Oil Tool Company at that time?

A. He had.

XQ. 286. Then might it not be that you saw the Jones round nosed reamer in July, 1901, inasmuch as you say you saw it after Jones left this shop? [816]

A. No, because I conceived the idea of dovetail ways and explained it to Mr. Jones before the reamer had left the shop, the change of construction I was going to make on the next type of underreamer.

XQ. 287. Then you feel quite sure that you had

(Testimony of Edward Double.)

not seen a pocket model of that reamer before that date?

A. To the best of my knowledge I never saw a pocket model of that.

QX. 228. Will you say so positively?

A. To the best of my knowledge I never seen one of those pocket models.

XQ. 289. Have you no recollection one way or the other? A. I have no recollection of seeing it.

XQ. 290. Are you able to say, and I will ask you to say yes or no, as to whether you had seen such a round nose Jones reamer, small model, before Jones left your shop? A. I did not.

XQ. 291. Did you make, in working out your ideas of the second reamer like the patent in suit, sketches following the same procedure you did the first one?

A. They were rough pencil sketches made. At that time at Santa Paula we had no draftsman and all the work was done from pencil sketches and the sketches were not exactly correct and when it would get in the shop it was a proposition of cutting [817] and trying until we got it working right.

XQ. 292. I thought Mr. Jones was there available to help you in drafting, as you said.

Mr. LYON.—He has not said that Jones made any drawings for him.

Mr. BLAKESLEE.—Please let me examine the witness. If he wants to correct—

Mr. LYON.—You are saying something, that the witness has made a statement.

The COURT.—He said Jones was there.



(Testimony of Edward Double.)

Mr. LYON.—“As you said.”

Mr. BLAKESLEE.—This is cross-examination.

The COURT.—Objection overruled.

The WITNESS.—Give me the question.

(Question read.)

A. Mr. Jones was not employed as a draftsman. He was employed as a machinist with the Union Oil Tool Company, lathe hand.

XQ. 293. (By Mr. BLAKESLEE.) Well, you at least utilized him as a draftsman, did you not, at times? A. I did not.

XQ. 294. He did not make any drawings under your suggestion or suggestion for use in the shop while he was there?

A. No drawings, to the best of my recollection.

XQ. 295. He did not work on any drawings in your office?

A. Not to the best of my recollection.

XQ. 296. You knew he could make drawings, didn't you?

A. I didn't know anything about his ability as a draftsman.

Mr. BLAKESLEE.—Now, we will ask that the witness produce a rough sketch similar to the one in evidence, only showing the substance of the sketches as made in connection with the second reamer conception.

Mr. LYON.—That is objected to, if your Honor please, as a waste of time. [818]

Mr. BLAKESLEE.—We want to know as fully as

(Testimony of Edward Double.)

we can what this witness proposed to tell us he did with this invention.

The COURT.—Objection sustained.

I think George C. Chatterdon shipped the model of Brown reamer to us at Santa Paula. I had been invited to the St. Elmo Hotel to take a look at that model and after looking it over they was to send it to Santa Paula and eventually did send it to Santa Paula. It laid in our office there for some time. I believe it is still in our possession. We received it sometime during the month of June, 1901. It was before we had completed my first reamer.

The people at the St. Elmo Hotel were trying to interest the Oil Tool Company in manufacturing the underreamer for them. I believe I requested that it be sent to our shop. I went to the St. Elmo Hotel and looked it over, and it looked as though the reamer had some possibilities in it. The Chatterdon-Eckenhoffer interests had interest in it then and still have interest in it.

I probably discussed that Brown reamer with several of the boys but just who I cannot recollect.

XQ. 313. Are you positive that you did not discuss that Brown reamer device at Santa Paula with Mr. F. W. Jones at your shop?

A. Not to the best of my recollection.

XQ. 314. Can you name anybody with whom you so discussed it there?

A. Well, I probably discussed it with several of the boys coming in and out of the shop, but just the particular men I discussed that with now, I cannot

(Testimony of Edward Double.)

recollect. I wouldn't say I didn't discuss it with anybody.

XQ. 315. Then you don't remember any specific individual with whom you discussed it, but at the same time you are sure, are you, that you did not discuss it with F. W. Jones?

A. We may have commented on the thing, seeing it in the office. [819]

XQ. 316. Mr. Jones was in your office more or less frequently, wasn't he, at that shop at that time?

A. Not any more than any other employee would, coming in for their orders.

I had been foreman of the shop at Titusville, Pennsylvania, before coming to California and I never had seen an underreamer until I came to California. I was in business in Titusville, Pa. Double & Herlehy. There was no use for underreamers there. We cased the wells and the formation stood up.

I have not the first reamer made of patent 734,833.

**Testimony of Chas. A. Buffington, for Complainants.**

Testimony of CHAS. A. BUFFINGTON, witness called on behalf of complainants, testifies as follows:

I am 36 years old; occupation, machinist. I am employed by the Union Tool Company at present. Have been a machinist for nearly sixteen years, having commenced work with Klien Bros. at Marietta, Ohio.

Arrived at Santa Paula, California, July 13, 1901. I went to work for the Union Oil Tool Company on the 14th of July, 1901.

(Testimony of Chas. A. Buffington.)

I met Frederick Jones shortly after that time. He was working at the Skinner shop.

Do not remember the work I did the first day or two I was with the Union Oil Tool Co. After having been there a week or so I did some work on an underreamer they were assembling and there was a mandrel which was a little long and they asked me to cut it off and re-thread it. The mandrel carried the slips and worked inside the spring and carries the cutters of the Underreamer. Think I would know that reamer if I saw it now.

(Testimony of witness interrupted until after reamer is produced. [820])

### **Testimony of B. N. Youngken, for Complainants.**

Testimony of B. N. YOUNGKEN, called on behalf of complainants, testifies as follows:

I was employed in the Union Oil Tool Company's shop during the year 1901. I was in that shop until the latter part of March or the first part of April, 1901. I then went to Los Angeles and did not return thereafter during the year 1901.

Of my personal knowledge I know nothing concerning the manufacture of that first Double underreamer.

I am acquainted with F. W. Jones.

On instructions of telephone message from Mr. Frederick Lyon last year, I went to Mr. Jones' ranch at McFarland to see him, and to ascertain the date of making of reamers in Santa Paula of his invention. Jones told me Mr. Wilson had been to see him also, and he refused him the information unless he



(Testimony of B. N. Youngken.)

was paid for it. Stated that he wanted a thousand dollars. The next day or day thereafter I met Mr. Lyon at Bakersfield and took him to Mr. Jones' ranch. I had conversation with Jones that day and had dinner with him at his ranch. Mrs. Jones cooked the dinner. Mr. Jones, Mr. Lyon and myself talked over these Reamer matters while Mrs. Jones was cooking the dinner.

In regard to Mr. Jones' statement that Mr. Lyon offered \$250 if Jones would say nothing about these underreamers in these cases will say: Mr. Lyon informed Mr. Jones that he had nothing to sell and that he would allow him—he first said he would not come to Los Angeles unless he might bring his family down, and it would be necessary for him to put someone in charge of his place while he was down here, and Lyon said that would be all right and if necessary Lyon would allow him up to \$250 for expenses to come down and look up witnesses, gather such data as might be necessary to have on this case. That Lyon also informed him that he could bring him down with subpoena, and all that he would be paid and all that the Court would allow would be his mileage and his witness fees. [821]

Mr. Jones stated that \$250 was no object to him at all. He would not bother with it for that money. He said that the other side had been negotiating with him and offered him more than that. A few days later I served a subpoena on Mr. Jones and his wife to testify in Bakersfield. Jones did not say who had offered him more than \$250—he simply said the



(Testimony of B. N. Youngken.)

other people. I know only from inference to whom he referred.

XQ. 30. And you can't state exactly what Mr. Jones said in that connection?

A. Only that he had communicated with Mr. Wilson and had some letters from him asking him to give his testimony or get the information from him. Jones wanted a thousand dollars for his right and he would testify. He stated that Mr. Wilson had explained to him that he had some rights in this suit; that he had been cheated out of the invention. Mr. Lyon did not offer him \$250 to keep out of the case.

I was not with Mr. Jones and Mr. Lyon every minute of the time the dinner was being cooked, hence I am not able to say of my own knowledge all that Mr. Lyon said to Mr. Jones at that place and on that date. Mr. Lyon told Mr. Jones that he had nothing to sell and that he had nothing which Mr. Lyon would buy.

I am at present employed by the Union Tool Company. Have been ever since that time.

### **Testimony of Frederick S. Lyon, for Complainants.**

Mr. Lyon testifies as follows:

My name is Frederick S. Lyon; I am counsel for complainant in this case. In July of last year I phoned Mr. Youngken to locate Mr. Jones, Frederick W. Jones, as I wanted him for a witness Case A-4 pending in this court. I received a telephone communication from Mr. Youngken, and in response to that I met [822] Mr. Youngken in Bakersfield and proceeded to Mr. Jones' ranch, and had a con-

(Testimony of Frederick S. Lyon.)

versation with him. Mr. Jones stated that Mr. E. C. Wilson had been up to see him and that he had given him no information whatever and that Mr. Wilson had stated that he had some rights in connection with the old underreamer matters and Mr. Jones stated to me that he would not come down to Los Angeles unless he be paid a thousand dollars. I told him that he had no rights that he could sell to anyone, but that it would cost the complainant a considerable amount of money to take his testimony up there and to hunt up the corroborating witnesses to show that this old Jones reamer with the removable bowl was made and sold by him in 1902. I remarked to Mr. Jones that he knew I knew the facts in regard to such reamers, and he said that he knew I knew. I offered him \$250, not to exceed \$250, for his expenses if he would come to Los Angeles, give his testimony in that case, assist me in finding the men who had used his removable bowl reamer, and the old records of the old shop. That was the substance of that conversation. I did not offer him any money or sum whatever for him keeping his mouth shut or remaining out of this litigation, or anything else. To the contrary, I told him that day that if he did not want to come down to Los Angeles I would subpoena him when I wanted him.

**Testimony of W. S. Dinger, Called as Witness on  
Behalf of Complainants.**

Mr. Dinger testifies as follows:

I am a blacksmith; I have been in the business for twenty-three years. Am employed by the Union

(Testimony of W. S. Dinger.)

Tool Company. Came to California in 1900. Went to work for the Union Oil Tool Company, Santa Paula. Mr. Double was in charge. Went to work about the 12th of April in 1900. Came to California to go to work for that company.

Met Fred W. Jones, who was a machinist in that shop, he being there when I went to work. [823]

Q. 21. Who was in charge when Mr. Double was away during that time, if anyone?

A. Well, there was Mr. Weekley, after he came there; I have seen the time he has gone away and not left anyone in charge and when he was away for a short while.

Mr. Double left no one in charge while he was away.

I remember an underreamer being manufactured in that shop.

Double came to me and stated that he wanted to build an underreamer. Said he had conceived the idea of an underreamer and thought he would go ahead and make it up at the first opportunity we had time. He and I discussed how we would make it up. I don't know whether that was the latter part of June or the first of July of 1901.

I forged the body under Double's instructions.

Q. 38. Did you have any drawings?

A. Well, no, we didn't have any drawings of regular form—blue-prints or anything of that kind—pencil sketches that Double give us. The forging went to the machine shop where Double was in charge.

(Testimony of W. S. Dinger.)

I had no conversation with Mr. Jones about it. Weekly turned it up, that is, he did the machine work on the body. Mr. Terriberry assembled it, I believe. I forged the cutters myself. Jones had nothing to do with making or building of that reamer. At that time Jones was in the Skinner shop.

Q. 49. Did you have any drawing-room or extensive drawings of any kind at the shop of the Union Oil Tool Company for any device of any kind during the years 1900 and 1901?

Mr. BLAKESLEE.—Object to that as calling for the conclusion of the witness, the witness not having qualified to testify as to what properties and drawings were in the shop. [824]

The COURT.—It is more or less objectionable. Objection overruled.

(Last question read.)

A. No.

Mr. LYON.—You may inquire.

In regard to work I did when I first went in that shop will say that, I wouldn't say positively whether it was tools to make from jars or jars. I can't just recall who they were made for. I think they were 6 $\frac{1}{4}$ ". Can't tell any particular jobs we did in the latter part of 1900.

XQ. 63. Why is it that this underreamer job along in 1901 stands out so clearly in your memory?

A. Well, it was something new that we had never made in the shop before.

XQ. 64. How recently have you discussed that reamer with Mr. Double? A. Recently?



(Testimony of W. S. Dinger.)

XQ. 65. Yes.      A. Well, the last few days.

XQ. 66. Mr. Double told you when you worked on it, didn't he?      A. No, sir.

I also discussed it with Mr. Lyon and Mr. Buffington. During the last seven days Mr. Buffington and Mr. Terriberry mentioned something about the date July, 1901, to me.

I cannot mention any particular work or piece of work I did during 1901, but after July of that year. I recollect it was 1901 that we worked on that reamer because it was just before we came to Los Angeles, about six months before. Can't remember anything we did or any job I did during those six months prior to finishing the first Double underreamer and moving to Los Angeles, unless it was jars or general run of work. I remember of making some elevators, but I don't remember what part of the six months [825] it was. The work I did on my fire was jars, fishing tools, stems, and that class of work.

A. John A. Richardson also worked in the blacksmith's shop at that time. He ran a small fire.

Mr. Weekly worked over at the Skinner shop for awhile in 1901. Jones worked there in June, July or August in 1901. Weekly worked there before Jones went to that shop. Am sure Jones worked there after June of 1901. Don't remember how long he worked there. It may have been in May that Jones severed his connection with the Union Oil Tool Company and went over to work with Mr. Skinner. He worked for the Union Oil Tool Company while he was there in the Skinner shop. Don't



(Testimony of W. S. Dinger.)

know he continued in the employ of the Union Oil Tool Company when he went over there to go with Skinner. As I understand it, Jones was connected with the Skinner business; he was also doing work for the Union Oil Tool Company. After he went to work at the Skinner shop I never saw him back working in the Union Oil Tool Company's shop. I don't know whether he did any work in the Skinner shop before he went over to the Skinner shop to stay there or not.

The COURT.—Let me understand you: You have already said that you are sure that he worked for the Union Oil Tool Company at the Skinner shop before, as I understand you, he went over and went into business with Skinner. Now this last answer seems to be just contrary to that. You state of your own knowledge what you mean.

The WITNESS.—I understood him to say whether he severed his connection with the Union Oil Tool Company when he went over to the Skinner shop I was working for the Union Oil Tool while he was over there and transferred the work back and forth while he was working at this shop at times, as I understand it.

I think all the people who worked on that first Double reamer were Mr. Weekly, Mr. Thomas, Mr. Terriberry, Mr. Buffington [826] and I think Mr. Gibson did a little work on it too, but I would not say as to that. I think Mr. Jones was in the Skinner shop when that first reamer was being made in the Union Oil Tool Company's shop; I think it was July.

(Testimony of W. S. Dinger.)

We ask that the reamer produced by complainant, namely, the first reamer referred to by this witness and by the witness Double be offered as "Defendant's Exhibit First Reamer, 1901."

Also ask that the Brown model be marked as stipulated on Saturday, as "Defendant's Exhibit Model of Brown Reamer, 1901."

Weksmith, the blacksmith who had run the large hammer, had an accident and was knocked out to a certain extent, and that is why I went down under this big hammer, to forge this reamer, and while forging that hammer a boy who was visiting us was around there quite awhile. That is the way I fixed the date as 1901.

I can fix the date as July as it was the second year in California and we had company visiting us that summer. I know they came that month. They were there about four weeks.

There were two sets of cutters forged with that reamer, and I forged them both. It was probably two months later that I did other work on that reamer. Made a second set of cutters. That is, after the first work was done.

**Testimony of Charles A. Buffington, for Complainants (Recalled).**

I will point out "Complainant's Exhibit Double's First Reamer," as the reamer to which I have referred as being the first reamer that I worked on in the Union Oil Tool Company's shop.

The first work I did on that reamer was when they were assembling it. The mandrel was too long and

(Testimony of Charles A. Buffington.)

had to have about one inch and a quarter cut off of it. Mr. Terriberry and Mr. Gibson [827] were putting it together. Fred W. Jones was not in the shop at that time. I never saw him in the shop about that reamer during July, 1901.

Last fall I was working for the Regan Oil and Tool Company near Sherman. Mr. Jones called on me two different times, first to ask me if I remembered the date that I came to work for the Union Tool Company.

I do not know when Mr. Jones went over to the Skinner shop in 1901. I cannot state positively that he was working over there on the 14th of July, 1901, when I came to Santa Paula. I saw him working in that shop immediately after. After I got better acquainted with Mr. Jones he told me that he was drawing an underreamer, round nose block. The first I saw Mr. Jones there was probably thirty days after July 15. Some time long about the middle of August. He was working over there at the time I was, that I got acquainted with him, and the supposition was around that they told me he was working over there. I couldn't say that I had personal knowledge of his working over there prior to August.

Mr. Richardson, a blacksmith, was working at that time in the shop. He made no reamer cutters to my knowledge.

I also knew William B. Naugle, he was boiler maker at that place.

The last fire Mr. Richardson worked on was a coal

(Testimony of Charles A. Buffington.)

fire where they dressed the lathe tools and done light work, such as dressing cold chisels, lathe tools, making springs, and, well, I couldn't describe all that they done on it, but that is the nature of the work.

I should say it was about two or three weeks after I commenced work in the Union Tool Company's shop that the Double reamer was completed. Did not see Jones in the shop during that time.

Both I and Mr. Dinger are still working for the Union Tool Company. I went to work for the Union Tool Company about the 5th [828] day of December, 1915. Last Friday was the first knowledge I had that I was going to be called upon to testify. Mr. Double called me on the telephone and asked me what morning I commenced work with the Union Tool Company and I told him it was July 15, 1901. He said he might want me later. Since then I have talked with Mr. Lyon.

**Testimony of W. J. Terriberry, Called as a Witness  
on Behalf of Complainant.**

Mr. Terriberry testifies as follows:

My name is W. J. Terriberry; age, 64; machinist. I am at present employed by the Union Tool Company. Was employed by their predecessor in Santa Paula and moved with that company from Santa Paula to Los Angeles.

Am acquainted with making the first Double underreamer in that shop. The original reamer is here (indicating) and the model is on the other side of it. It was manufactured along the middle of July, 1900, or 1901, at Santa Paula. I did work on

(Testimony of W. J. Terriberry.)

it. Gibson, Weekly and Dinger also worked on it. Dinger forged the cutters and the body. He forged two sets of cutters,  $9\frac{5}{8}$  and  $11\frac{5}{8}$ . That reamer was built under Mr. Double's directions.

Jones had nothing to do with the manufacture of that reamer, because he wasn't in the shop. He was over at Skinner's. Mr. Richardson had nothing to do with the forging of the cutters of that reamer.

Mr. Double gave pencil sketches, told us what he wanted.

Mr. BLAKESLEE.—XQ. 41. Now, do you know anything about these sketches as far as their making was concerned? A. As far as their making?

XQ. 42. Yes.

A. Well, they are all the sketches I know of are made in the office.

XQ. 43. Yes, but who made them?

A. Double always did make them, everything I know of. [829]

XQ. 44. Did you see him make any sketches there?

A. Well, I have seen him make several.

XQ. 45. Of what? A. Different work.

XQ. 46. Didn't you see Mr. Jones in the office?

A. Mr. Jones?

XQ. 47. F. W. Jones.

A. No, sir; never saw him in that office to my knowledge.

XQ. 48. Never saw him in the office. What did you ever see Mr. Double make a sketch of?

A. Why, I have seen him make sketches of different parts of work that we were doing there, spears



(Testimony of W. J. Terriberry.)  
and cutters, one thing and another.

XQ. And what kind of instructions did he give you about this first reamer, Complainant's Exhibit First Double Reamer?

A. Simply to fit them up according to his sketch.

XQ. 57. Were you constantly in touch with the making of this first reamer? A. Yes.

I testified in the interference suit between Edward Mills and Edward Double. I identified this same reamer at that time, July 14, 1903. That reamer was built under Double's instructions. At that time I did not hear any talk by anyone that Fred W. Jones had anything whatever to do with that reamer.

I was working under Double at that time. Double gave us pencil sketches and told us what he wanted. I did not see Double make those sketches. Double always did make sketches of everything I know of. I have seen him make several sketches. Have seen him make sketches of different work.

I never saw Jones in the office to my knowledge. The first instructions were simply to make them up or fit them up according to his sketch. [830]

I saw Dinger make the body, but Richardson may have made the key or something of that kind that he forged on. Jones was not in the shop at that time. He left the shop long about the first of July. Somewhere in there. He was over in the Skinner shop. He was working for the Union Tool Company over there, but what time he got through with the Union Tool Company I don't know. I never paid any attention to what Jones was doing over in the Skinner

(Testimony of W. J. Terriberry.)

shop or anything about it. He was not at the shop there or at the Union shop at that time, that is, part of the time, that is all the time from the time he went over to work for the Union Oil Tool Company he wasn't over at work in the Union Tool Company's shop. Between the first of June, 1901, and the 15 of July, 1901, Jones was in the Skinner shop, but I don't know how much of the time. Mr. Richardson may have made a key or forged a key for that first reamer. I couldn't say who made the spring, for that first reamer. Richardson might have made the mandrel, I am not sure about that. I put the spring in that first reamer myself; I got it from the storehouse. In my conversation with Jones last September or October there was nothing said about the first Double reamer. I don't remember anything of the kind that Buffington had anything to do with building the first Double underreamer at Santa Paula. Jones was not in the employ of the Union Tool Company at the time the first Double reamer was sent out for its trial by McGee.

It was returned in the latter part of July or first of August or somewhere in there. I saw it when it came back. I don't think Mr. Jones was in the employ of the Union Oil Tool Co. then. I know it was not October that that reamer came back the first time because it wasn't out for that short time when it came back.

Other reamers were manufactured in that shop after that first reamer came back; we made some

(Testimony of W. J. Terriberry.)

Austrian underreamers and we made some Double reamers. Probably a month or six weeks when we started another one. [831]

**Testimony of George L. Skinner, for Defendant.**

Testimony of GEORGE L. SKINNER, called on behalf of defendant, testifies as follows:

My name is George L. Skinner; age, 65; occupation, watchmaker and jeweler. During the years 1900, 1901 and 1902 I resided in Santa Paula and conducted a machine shop there. Did general machine work. About December of 1900 or 1902 I put in a shaper and put in a large twenty-six-inch lathe. That was a Flather lathe, I think, if I am not sure, I obtained it from Booth & Company.

I did work for the Union Oil Tool Company in Santa Paula, but my dealings with that company terminated something like five or six weeks after that Flather lathe was put in commission.

The first settlement I had after installing that lathe I found out I was getting no remuneration for the use of that lathe; consequently I quit, ended my services with them and dealings with them. Nobody from the Union Tool Company's shop worked in my place after that. Mr. Double and I ceased to be friends after that settlement. Because he would not allow me any extra for the use of the new lathe.

Mr. Terriberry from the Union Oil Tool Company's shop worked on that lathe. Also Mr. Weekly from that shop worked on my new lathe. Weekly, I think, worked only the one day. The equipment

(Testimony of George L. Skinner.)

was not strong enough to stand his work. He was a lightening joint turner. Youngken worked there for me for several days, at one time making some casing cutters. I cannot remember the name of any person besides Weekly, Terriberry and Youngken who worked there.

It might have been ten days or two weeks time in installing that Flather lathe. Possibly two weeks *from it* landed in the building before it was in condition to run. It might have been six weeks after that lathe came in my shop, I don't think it could have been any more than that, that I broke off my relations with Mr. Double. That would be an outside figure. [832]

I don't remember the date that Jones began to work in partnership with me. Couldn't give you the exact date, that the Union Tool Company and I quit doing business together. It could not have been long after that date that Mr. Jones and I went into partnership with each other. I would have to refer to my books to give you the exact date.

I am of the opinion, as I said before, that there were others besides Weekly and Terriberry who worked in my shop, but I couldn't name them. I don't know about Jones working there. I am not positive about that. He might have, but I don't remember of it, neither does my family. He couldn't have worked there long.

**Testimony of Fred W. Jones, for Defendant.**

FRED W. JONES, for Defendant, recalled to testify further.

To the best of my knowledge, I did do some work in the Skinner shop for the Union Oil Tool Company prior to the time I left the Union Oil Tool Company's employ.

Regarding Mr. Youngken's testimony that during the early part of August of last year I stated that the other people had offered me more than two hundred and fifty dollars for my interest, such as they might be, in this underreamer controversy, will say that I don't remember of hearing such conversation. I remember well where we were at the time when the conversation took place in regard to this money, and the time. We were sitting on the porch, after dinner, and I have already stated the conversation what took place as near as I could remember,

I have known Thomas O'Donnell for a number of years. I knew Thomas O'Donnell in Colorado long before 1890. That was before I came to California. I came to California from Arizona with the sole object of visiting Mr. O'Donnell. I met Mr. O'Donnell in Ventura County where he was working on the lease known as the Kentuck in the Sespe Canyon. I saw Mr. O'Donnell in Santa Paula many times after that. They lived there for a while. During the [833] month of May, June or July, Thomas O'Donnell was in Santa Paula, and he was at the shop, and I remember introducing him to Mr. Double and Mr. Double said he had already met Mr. O'Donnell.

At one time while in the employ of the Union Tool



(Testimony of Fred W. Jones.)

Company shop and while Mr. Double was in charge he said to me, "You will have to mark your time, time and a quarter from now on." And I said, "that I would not do it." "Well," says he, "from now on you will get one and a quarter time for over time." And so the next evening I marked my time, time and a half, and he came in the next morning and he brought my card in and he says, "I told you to mark your time time and a quarter," and I said, "I know you did." "I am not going to do it; if you want this time-card changed you will change it yourself." He says, "If you don't want to work for time and a quarter, you can quit." I said, "All right, I will quit." I had already talked to the other men in the shop about it, and they seemed to think that it was all right, they would abide, at least they didn't raise a voice against it. I was the only one that made any kick. I quit and I went home. I then went to the office of the company in the Hardware Building and found Mr. Lyman Stewart and I told him the trouble.

Under Mr. Stewart's orders I again went to work. He told me to go back to work and I did so. Double asked when I went back to the shop, "What did you come for?" I told him I had come back to work, and he said, "You won't do anything of the kind." I said I would. I told him Mr. Stewart told me to go and I had talked to him and he had talked to Mr. Double. Mr. Double came into the shop to me, and he sat on the bench where I was working for quite awhile before he said anything. Then he said, "Mr. Jones, I have an apology to make, to you." He said, "You

(Testimony of Fred W. Jones.)

and I haven't been getting along very well." He says, "It has been a mistake"; and he said, "From now on we'll be good friends; we will assist one another." [834] He says, "You can help me and I can help you." And he says, "We will be friends." I says, "All right, Mr. Double." I said, "I am willing to do anything to help you, help the concern along." That ended our grievance. We never had no more trouble after that. This occurrence was some time prior to the time the first underreamer was made in that shop. It was quite awhile before that time. I don't believe Mr. Buffington was ever at work in the Union Oil Tool Company's shop at Santa Paula while I was there. I have seen him at work in that shop later on.

I had a talk with Mr. Terriberry along last September or October—some time along there. At that time Mr. Terriberry told me that the best that he could remember, he was in Los Angeles, working for the rolling mills at the time I got up that underreamer, and that he could not help me out any. He had quite a long talk, but it was on other matters mostly.

I have heard Mr. Buffington's testimony this morning.

**Testimony of Chas. A. Buffington, for Defendant.  
(Recalled).**

CHAS. A. BUFFINGTON, recalled on behalf of defendant, testifies as follows:

Mr. Jones called on me out at Sherman Junction

(Testimony of Chas. A. Buffington.)

in the Regan Oil Tool Company's shop. He first asked me if I remembered when I came to work for the Union Oil Tool Company at Santa Paula. I told him I did. He asked me if he was working there at that time, and I said he was not.

He asked me if I had done any work on that reamer and I told him that I had. He wanted to know if it was commonly known in and around the place that he was interested in that reamer. I told him it was not. He says to me, "If anybody should ask you, why, you tell them I was." I then reported that to Mr. Lyon. They then attempted to get me to sign an affidavit that Mr. Jones was the inventor of that reamer. [835]

**Testimony of Fred W. Jones, for Defendant  
(Recalled).**

When I went out to see Mr. Buffington, to the best of my recollection, I first approached on whether he remembered about the time this reamer was being in the course of construction, or whether it was completed, or whether it was under construction when he came there. He stated that he thought it was about completed, but they were putting it together and he only remembered of only doing one job on the reamer, and that he had already stated. I did not ask Buffington whether or not I had worked at the Union Oil Tool Company's shop in summer of 1901. He said he would give an affidavit as to what he knew about the affair, and I took a stenographer out and he took the affidavit down of Mr. Buffington, and then Mr.

(Testimony of Fred W. Jones.)

Buffington, as I understand it, refused to sign this affidavit. There was a reporter present during this conversation. He took it all down.

**Testimony of J. B. Shaw, Witness Called on Behalf  
of Defendants.**

Mr. Shaw testifies as follows:

My name is J. B. Shaw; age, 52; salesman. Have been in the machinery business about sixteen or seventeen years. During 1901 was with the Pacific Coast Manufacturing Company. Business was in Los Angeles. At one time that firm sold a lathe to Mr. Skinner of Santa Paula. I don't remember the exact date, but I know it was about when I had been there two years. I have no knowledge of the particular date of the transaction. I went with them in 1899. We sold Skinner a Flather lathe and I think a drill press. I remember that distinctly, because we sold two or three only of that make. I can refresh my memory as to the date from old letter press copy book. The letter to which I was intending to refer was a letter with reference to a shipment, to the purchase of the lathe and the shipment of the lathe from Los Angeles to Santa Paula. It was a letter given to Skinner. It was contained in the letter book of the Pacific Coast Manufacturing Company. I [836] know that that was the letter-book of that company at that time.

I did not copy the letter. I know that book contains letters that I dictated.

I saw the packet containing the lathe. My recol-

(Testimony of J. B. Shaw.)

lection is it was completely boxed. To my knowledge it was shipped to Skinner. It is my knowledge that it came from Flather & Company, New Hampshire.

**Testimony of James A. Haskett, for Defendant.**

Testimony of JAMES A. HASKETT, witness on behalf of defendant, testifies as follows:

My name is James Haskett; I deal in street improvement bonds. I have been in the machinery business, and was, during the years of 1900 and 1901. I was vice-president and general manager of the Pacific Coast Manufacturing Company. That was in Los Angeles. I was general manager of the concern and in close touch with the business. I have a recollection of a transaction with George L. Skinner of Santa Paula. Will say that myself and associates bought the firm of C. B. Booth Company in December, of 1900. This transaction with Skinner I think perhaps in December of 1900, or January of 1901. The lathe was shipped by the Flather people on February 7, 1901. It was my recollection that that lathe was shipped on March 20th or 23 of 1901, from Los Angeles to Santa Paula.

I have a letter-book in which is a copy of the letter. From my own recollection I do not remember of having seen the lathe. I don't remember of ever having seen the lathe. There was considerable delay in getting this shipment from the factory. It was a large engine lathe, I think 26" x 16 feet, and the factory did not make as prompt shipment as they had led us to believe, when the order was given, that they would. This was the means of considerable cor-



(Testimony of James A. Haskett.)

respondence. I remember that the lathe was shipped, reached Los Angeles, was reshipped to George L. Skinner at Santa Paula. We paid for the lathe and he paid us. Prompt payment was [837] made by Mr. Skinner shortly after receipt by Mr. Skinner at Santa Paula. I would say that payment was made within thirty days from the receipt of the lathe by Mr. Skinner at Santa Paula. There was no congestion in freight between Los Angeles and Santa Paula. I think there was no delay from Los Angeles to Santa Paula.

**Testimony of E. C. Wilson, Called on Behalf of  
Defendant.**

Concerning Mr. Youngken's testimony to the effect that he worked with the Union Oil Tool Company and its successor, the Union Tool Company, from the time he first testified about, including the year 1901, I will say that Mr. Youngken was employed by the Webster Iron Works of Bakersfield, California, and was also employed by the Bakersfield Iron Works in Bakersfield, to the best of my recollection, during the time that I was manager of that shop. I think that was during 1904 or '05.

I do not remember the exact length of time he was employed there.

I made no offer to Mr. Jones for any testimony or for any of his interests. I told him that if he should testify for us of course he would be entitled to witness fees and that he would be entitled to his transportation charges or expenses.

(Testimony of E. C. Wilson.)

I went to see Mr. Jones at McFarland about June or July of 1915. I had conversation with him then in regard to the reamer matters. Was also present the day he gave his deposition in A-4 Bakersfield. I do not remember that I wired him to meet us in Bakersfield that morning. I will not be positive. We may have wired. I did have a talk with him—not a long talk with him before his deposition that morning. I talked with him just a few minutes.

It was at my instigation that Mr. Jones came to Los Angeles [838] to take up the underreamer matters. No agreement to pay him anything except his witness fees and expenses. I suppose his total expenses were probably \$150. Don't remember how much we paid him for the expenses of his second visit to Los Angeles. Have probably paid him \$20 or \$25 for his expenses up to date on this trip. I think we sent Mr. Jones to Mr. Eckenhooffer and Mr. Chatterton to try and purchase their interests in the Double patent. He was representing us to obtain information.

As to the expenses of a man taking care of the ranch there were no arrangements made at all. I understand that their son is staying at the ranch and taking care of the ranch, so I have just been informed in the last day or so. We have paid Jones a small amount for his time while he was down here gathering up data in addition to his actual expenses. [839]

#### STIPULATION.

It is stipulated that the foregoing may be approved by the Court as a condensed statement of the testi-

mony and proceedings during the taking of testimony, under Rule 75, for the purposes of defendant's appeal.

FREDERICK S. LYON,  
Solicitor for Complainants.

RAYMOND IVES BLAKESLEE,  
Solicitor for Defendant.

Approved:

BLEDSON,  
District Judge.

[Endorsed]: C. C. No. 1540. U. S. District Court, Southern District of California, Southern Division. Union Tool Co. vs. Wilson & Willard Mfg. Co. Condensed Statement on Appeal. Filed Apr. 27, 1917. Wm. M. Van Dyke, Clerk. By R. S. Zimmerman, Deputy Clerk. [840]

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*In the United States District Court, Southern District of California, Southern Division.*

IN EQUITY—CIR. CT. No. 1540.

UNION TOOL COMPANY et al.,  
Complainants,

vs.

WILSON & WILLARD MANUFACTURING  
COMPANY,

Defendant.

**Order for Transmission of Exhibits to United States Circuit Court of Appeals for the Ninth Circuit.**

It appearing that complainant-appellant in this cause has requested such action, and good cause appearing therefor,—

IT IS ORDERED, that all of the original exhibits forming part of the evidence in this cause, being because of their nature necessary to inspection by the United States Circuit Court of Appeals for the Ninth Circuit, and by the Supreme Court of the United States, if said cause is appealed thereto, may be sent up as original exhibits instead of making copies or duplicates thereof, in addition to the transcript of the record, in accordance with subdivision 4 of Rule 14 of the Rules of the United States Circuit Court of Appeals, for the Ninth Circuit, and subdivision 4 of Rule 8 of the Rules of the Supreme Court of the United States; the said exhibits to be delivered to the clerk of the United States Circuit Court of Appeals for the Ninth Circuit, to be returned to the files of the cause in this Court, upon the final determination of the appeal herein by the [841] United States Circuit Court of Appeals for the Ninth Circuit or by the Supreme Court of the United States, if appealed thereto.

Dated Los Angeles, California, July 26, 1916.

BLEDSON,

Judge. [842]

[Endorsed]: In Equity—Cir. Ct. C. C. No. 1540. United States District Court, Southern District of California, Southern Division. Union Tool Co. et al., Complainants, vs. Wilson & Willard Mfg. Co., Defendant. Order for Transmission of Exhibits to United States Circuit Court of Appeals, etc. Filed July 27, 1916. Wm. M. Van Dyke, Clerk. By Chas. N. Williams, Deputy Clerk. Raymond Ives Blakes-

lee, 726-30 California Building, Los Angeles, Cal.,  
Solicitor for Defendant. [843].

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*In the United States District Court, Southern Dis-  
trict of California, Southern Division.*

IN EQUITY—CIR. CT. No. 1540.

UNION TOOL COMPANY et al.,  
Complainants,

vs.

WILSON & WILLARD MANUFACTURING  
COMPANY,  
Defendant.

**Petition for Order Allowing Appeal.**

Wilson & Willard Manufacturing Company, defendant in the above-entitled cause, conceiving itself aggrieved by the Interlocutory Order and Decree filed and entered on the 1st day of July, 1916, in pursuance of the Memorandum Decision filed June 19, 1916, in the above-entitled cause, whereby it was ordered, adjudged and decreed that the complainants' letters patent are good and valid in law, particularly as to claims 1, 2, 6, 7 and 8 thereof; that defendant has infringed the same, and particularly upon said ant has infringed the same, and particuary upon said claims 1, 2, 6, 7 and 8 thereof; and that a perpetual injunction issue directed to said defendant, its officers, attorneys, directors, agents, servants, workmen and associates, enjoining them, and each and every of them, from manufacturing or causing to be manufactured, using or causing to be used, selling or causing to be sold, either directly or indirectly, any



underreamer or underreamers like or embodying the construction or interrelation of parts of either "Complainants' Exhibit Wilson Reamer," "Complainants' Exhibit Wilson Reamer No. 2," or the Wilson underreamer with the two-piece device, or the underreamer set forth or described in Letters Patent No. 827,595, dated July 31, 1906, to Elihu C. [844] Wilson, and from manufacturing or causing to be manufactured, selling or causing to be sold, using or causing to be used, either directly or indirectly, any part or parts thereof capable of being combined or used as a part of any underreamer or device in infringement of said letters patent, that is, of claims 1, 2, 6, 7 and 8 thereof in any manner whatsoever, or from manufacturing or causing to be manufactured, using or causing to be used, selling or causing to be sold, either directly or indirectly, any combination of parts capable of being assembled together or used in infringement of said letters patent that is of claims 1, 2, 6, 7 and 8 thereof,—together with costs and disbursements of this suit to the complainants, and awarding other relief,—now comes Raymond Ives Blakeslee, Esq., solicitor for defendant, and petitions said Court for an order allowing defendant, Wilson & Willard Manufacturing Company, to prosecute an appeal from said interlocutory order and decree and the decision of the Court thereupon, and from the whole thereof, to the Honorable, The United States Circuit Court of Appeals for the Ninth Circuit, for the reasons specified in the Assignment of Errors which is filed herewith, under and according to the laws of the United States in that behalf made

and provided; and also that an order be made fixing the amount of security which defendant shall give and furnish upon such appeal; and that a citation issue as provided by law, and that a certified transcript of the records, proceedings and papers upon which said decree was based be forthwith transmitted to the United States Circuit Court of Appeals for the Ninth Circuit, together with the exhibits on file in this case, in accordance with the Rules in Equity promulgated by the Supreme Court of the United States and the statutes made and provided. [845]

And your petitioner will ever pray.

RAYMOND IVES BLAKESLEE,

Solicitor for Defendant. [846]

[Endorsed]: In Equity—Cir. Ct. No. 1540. United States District Court, Southern District of California, Southern Division. Union Tool Co. et al., Complainants, vs. Wilson & Willard Mfg. Co., Defendant. Petition for Order Allowing Appeal. Filed Jul. 21, 1916. Wm. M. Van Dyke, Clerk. By Chas. N. Williams, Deputy Clerk. Raymond Ives Blakeslee, 728-30 California Building, Los Angeles, Cal., Solicitor for Defendant. [847]

*In the United States District Court, Southern District of California, Southern Division.*

IN EQUITY—CIR. CT. No. 1540.

UNION TOOL COMPANY et al.,

Complainants,

vs.

WILSON & WILLARD MANUFACTURING  
COMPANY,

Defendant.

**Order Allowing Appeal.**

In the above-entitled cause the defendant having filed its petition for an order allowing an appeal from the order of this Court made and entered July 1, 1916, together with Assignment of Errors;

Now, upon motion of Raymond Ives Blakeslee, Esq., solicitor for defendant, IT IS ORDERED that said appeal be, and hereby is, allowed to defendant, to the United States Circuit Court of Appeals for the Ninth Circuit, from the said order or decree made and entered by this Court in this cause on July 1, 1916, that defendant be enjoined and restrained from infringement of those certain letters patent No. 734,833, of complainants specified in said order, and further awarding costs and other relief to complainants, and that the amount of defendant's bond on said appeal be, and the same is hereby fixed at the sum of two hundred fifty dollars (\$250).

IT IS FURTHER ORDERED, that upon the filing of such security a certified transcript of the records and proceedings herein be forthwith trans-

mitted to said United States Circuit Court of Appeals for the Ninth Circuit, in accordance with the [848] Rules in Equity by the Supreme Court of the United States promulgated, and in accordance with the statutes made and provided, together with the exhibits on file in this case or duly certified copies thereof.

Dated July 21, 1916.

BLEDSON,  
Judge. [849]

[Endorsed]: In Equity—Cir. Ct. No. 1540. United States District Court, Southern District of California, Southern Division. Union Tool Co. et al., Complainants, vs. Wilson & Willard Mfg. Co., Defendant. Order Allowing Appeal. Filed Jul. 22, 1916. Wm. M. Van Dyke, Clerk. By R. S. Zimmerman, Deputy Clerk. Raymond Ives Blakeslee, 728-30 California Building, Los Angeles, Cal., Solicitor for Defendant. [850]

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*In the United States District Court, Southern District of California, Southern Division.*

IN EQUITY—CIR. CT. No. 1540.

UNION TOOL COMPANY et al.,

Complainants,

vs.

WILSON & WILLARD MANUFACTURING  
COMPANY,

Defendant.

**Assignment of Errors.**

Comes now the defendant above named and specifies and assigns the following as the errors upon which it will rely upon its appeal to United States Circuit Court of Appeals for the Ninth Circuit, from the decree or order of this Court of July 1, 1916:

**I.**

That the District Court of the United States for the Ninth Circuit, Southern District of California, Southern Division, erred in entering any decree in favor of complainants.

**II.**

That said Court erred in finding and decreeing that the letters patent sued on are good and valid in law.

**III.**

That said Court erred in finding and decreeing that the letters patent sued on, even if good and valid in law, are infringed.

**IV.**

That the Court erred in finding and decreeing that Edward Double was the original, first, true and sole inventor [851] of the alleged invention disclosed and claimed in and by the letters patent sued on.

**V.**

That the said Court erred in not finding that Frederick W. Jones, then of Santa Paula, County of Ventura, California, was the original, first, true and sole and independent inventor of the invention of the letters patent sued on; or in not finding, alternatively,



that said Edward Double and said Frederick W. Jones were the joint inventors of the invention of the letters patent sued on; or alternatively, in not finding that one Jacob S. Brown, then of Los Angeles, County of Los Angeles, and State of California, was the original, first, true and sole inventor of the invention of the letters patent sued on.

#### VI.

That said Court erred in not finding that the letters patent sued on are anticipated by or to be narrowly construed in view of the so-called Canadian underreamer.

#### VII.

That the Court erred in not finding that the letters patent sued on are anticipated by or to be narrowly construed in view of the so-called O'Donnell and Willard device.

#### VIII.

That said Court erred in not finding that the presumption of validity of the letters patent sued on was destroyed by the failure of the Patent Office to declare an interference pursuant to section 4904, U. S. R. S., as between the application for the letters patent sued on and the co-pending application for letters patent for the O'Donnell and Willard patent No. 762,435.

#### IX.

That the Court erred in not finding that the presumption of the validity of letters patent sued on is destroyed because of the failure of the Patent Office to declare an interference [852] proceeding pursuant to section 4904, U. S. R. S., between the appli-

cation for the letters patent sued on and the co-pending application for letters patent No. 687,296 to Brown.

### X.

That the Court erred in not finding that a model of the so-called Brown reamer, being before and known by said Edward Double prior to the time of his alleged invention of the invention of the letters patent sued on, said letters patent sued on are to be narrowly construed as to any possible invention therein contained.

### XI.

That the Court erred in not finding that as to any possible breadth or scope or importance the invention of the letters patent sued on, same is reflected and claimed and described and disclosed in the O'Donnell and Willard patent No. 762,435, so that the applicants for said letters patent, having filed their application prior to the application for the letters patent sued on, are to be presumed to be the first, original, and joint inventors of any such inventive matter of any possible scope or importance claimed in and by the letters patent sued on.

### XII.

That the Court erred in not finding that the letters patent sued on are anticipated by or are to be narrowly construed in view of the so-called Jones' round-nosed reamer.

### XIII.

That the Court erred in not finding that said Jones' round-nosed reamer being before or known by said Edward Double prior to the time of his alleged in-

vention of the invention of the letters patent sued on, said Edward Double surreptitiously applied for the letters patent sued on and was not the original [853] first, sole and independent inventor of the alleged invention of the letters patent sued on, and wrongfully obtained said letters patent sued on.

XIV.

That the Court erred in not finding that the so-called Brown reamer model having been before and known by said Edward Double prior to the time of his alleged invention of the invention of the letters patent sued on, said Edward Double surreptitiously applied for the letters patent sued on and wrongfully obtained the letters patent sued on.

XV.

That the Court erred in not finding that the Swan reamer and patent of Swan letters patent No. 683,352 both anticipate the letters patent sued on, or that in view thereof the letters patent sued on must be narrowly construed.

XVI.

That the Court erred in not finding that said Frederick W. Jones actually invented, produced, made the first drawings of, and to an extent superintended the construction of, the first underreamer or underreamers produced containing and embodying in part or in whole the invention of the letters patent sued on, and that Edward Double obtained all of his knowledge of said invention from the same and from said Frederick W. Jones.

XVII.

That the Court erred in not finding that because

of the many patents and devices recited, and many other patents and devices, the letters patent sued on are entirely and wholly anticipated or are to be so narrowly construed that the devices of the defendant complained of cannot infringe said letters patent.

## XVIII.

That the Court erred in not finding that the letters patent [854] sued on are wholly and totally void and invalid and of no effect whatsoever.

## XIX.

That the Court erred in not finding that the said Edward Double in his said application for the letters patent sued on so voluntarily limited his claims that the same cannot receive any broad or substantially comprehensive interpretation whatsoever, but must on the contrary be most narrowly construed, so as not to be infringed by the devices of the defendant complained of.

## XX.

That the Court erred in not finding that the devices of the defendant embody a radically different and important invention clearly distinguished from the invention of the letters patent sued on, defendant's president having received letters patent under which such reamers were made and which are numbered 827,595.

## XXI.

That the Court erred in not finding as a matter of law that the defendant has and at all times since the date of issuance thereof has had, a constructive license to use any material invention described, dis-

closed and claimed in the letters patent sued on, and likewise claimed in letters patent No. 762,435 issued to said O'Donnell and Willard.

## XXII.

That the Court erred in not finding that the complainants' reamer failed to thoroughly and extensively take the field or satisfy drillers and users until after it had been altered and changed to embody important features of the said invention of said letters patent No. 827,595 to Elihu C. Wilson, president of defendant corporation. [855]

## XXIII.

That the Court erred in not finding that the said invention of said letters patent to Wilson No. 827,595 constituted "the last step in the art" and made underreaming in California and other fields a true success, and effectively and exclusively took such field so as to crowd out and displace somewhat the earlier underreamers of the letters patent sued on, being a stronger, safer, more reliable, longer-lived, more easily assembled, and generally more satisfactory underreamer.

## XXIV.

That the Court erred in not finding that claims 1, 2, 6, 7 and 8 of the letters patent sued on are as specifically limited in terms as the remaining claims of the letters patent sued on, and equally and as plainly and clearly not infringed by the devices of the defendant complained of.

## XXV.

That the Court erred in finding that extensive use of the alleged invention of the patent in suit with the



presumption arising from the grant of the patent is sufficient to dissolve any doubt in favor of the validity of the patent.

## XXVI.

That the Court erred in finding said Frederick W. Jones to be an employee of National Supply Company.

## XXVII.

That the Court erred in finding that the Mills-Double interference was an interference contest involving the Double underreamer, if such Double underreamer was to be understood to be the specific reamer of the alleged invention of the letters patent sued on.

## XXVIII.

That the Court erred in finding that the testimony of the [856] said Frederick W. Jones is to be so discredited as to leave no warrant for overthrowing the presumption of regularity of the issuance of the patent in suit.

## XXIX.

That the Court erred in finding that the main question in this cause is what range of equivalents, if any, complainants are entitled, under the patent in suit, to be protected against.

## XXX.

That the Court erred in finding that the complainants are entitled to a fair range of equivalents with respect to the patent in suit.

## XXXI.

That the Court erred in finding that the tilting means adopted for the collapsion and expansion of

the cutters of the letters patent sued on and the combining of the same with inter-related dovetails on the cutters and ways of the body extension, were features either chiefly novel or novel at all in the alleged invention of the letters patent sued on.

### XXXII.

That the Court erred in finding that any distinction exists between underreamer cutter actions in which there is a sliding of the cutter on the key and a tilting of the cutter on the key, inasmuch as both such actions, rather than a rocking or swinging action like that of the defendant's device, occur in the underreamer of the letters patent sued on, the rocking or swinging action of defendant's devices finding its counterpart in the rocking or swinging action of the so-called Brown reamer and patent, and the tilting action finding its counterpart in the so-called O'Donnell and Willard reamer and patent and being properly described as action tending to an upending in contradistinction from the more properly described [857] pendulum action of the cutters of the defendant's devices and the so-called Brown reamer and patent cutters.

### XXXIII.

That the Court erred in not finding that there is a distinction between the release of the cutters immediately permitted in the commencement of col-lapsion in defendant's devices, and the delayed col-lapsion produced in the devices of the letters patent sued on due to the parallel faces of the hollow-slotted extension thereof.

## XXXIV.

That the *Court* in finding that in the letters patent sued on stronger body construction is permitted than in the so-called O'Donnell and Willard device.

## XXXV.

That the Court erred in finding that there is no spreading bearing in the so-called Jones' round-nosed reamer between the cutters to assist in the expansion and collapsion of the cutters.

## XXXVI.

That the Court erred in finding that the difference in mode of operation between the so-called Jones' round-nosed and said Double reamer of the patent sued on, renders it unnecessary to consider whether the Jones' round-nosed reamer preceded the said Edward Double invention and whether said Edward Double was familiar with it.

## XXXVII.

That the Court erred in finding that the defendant's devices infringe the letters patent sued on.

## XXXVIII.

That the Court erred in finding defendant's devices to infringe the letters patent sued on, while finding that the [858] difference in mode of operation between the so-called O'Donnell and Willard underreamer and the underreamer of the letters patent sued on was such as to render it unnecessary to consider whether there should have been an interference proceeding in the Patent Office relating to the applications for said O'Donnell and Willard patent and the letters patent sued on.

## XXXIX.

That the Court erred in finding that the defendant's devices infringe the letters patent sued on, while finding that the essential difference between the so-called earlier Brown patent reamer and the reamer of the letters patent sued on was the suspension means for the cutters, inasmuch as the defendant's *devides* do not use the suspension means of the letters patent sued on, and it has been conceded in this cause that all of the parts of the reamers of the letters patent sued on themselves were old prior to the alleged invention of the invention of the letters patent sued on, and in view of the withdrawal by complainants of the charge of infringement as to claims 3, 4 and 5 of the letters patent sued on.

## XL.

That the Court erred in finding that the 1900 Oil Well Supply Company catalogue cut of the so-called Canadian reamer is not sufficient publication to establish anticipation.

## XLI.

That the Court erred in not finding that in effect the cutters of the so-called Canadian underreamer are suspended from a spring-actuated rod in the body of the underreamer.

## XLII.

That particularly in view of the so-called Jones' round-nosed reamer the Court erred in finding that none of the underreamers of the prior art combine cutters tilting over the lower end of the underreamer body with shanks having dovetails so inter-related [859] to dovetail ways upon the body of the under-



1028 *Wilson & Willard Manufacturing Company*  
reamer as to afford inner, outer and lateral bearings  
when in working position.

XLIII.

That the Court erred in finding that the cutters of the so-called Brown device or patent might fail to be jointly operated to collapse the same when withdrawing the reamer from working position, inasmuch as a sufficient amount of elevation would of necessity collapse the cutters.

XLIV.

That the Court erred in finding that the letters patent sued on cover inter-related dovetails on the cutter shanks and ways therefor on the body of the extension, with the means by which the tilting action of the cutters over the lower end of the body was accomplished, in not broad or other than most narrow significance and in combination with specific details, inasmuch as the letters patent sued on do not contain any claim for such features independent of said limitations, which limitations *in toto* are not found embodied in defendant's reamer, and it having been conceded by complainants in this cause that all parts of the underreamer of the letters patent sued on were old at the time of the alleged invention thereof by said Edward Double.

XLV.

That the Court erred in finding that breadth or scope resides in the claims of the letters patent sued on because of the inclusion of a plurality of elements therein, or due to any attempted combinative reading of one claim of said patent with another, the claims of the letters patent being in effect for sepa-



rate inventions within the law.

XLVI.

That the Court erred in finding that the opposite bearing [860] faces 9 upon the prongs of the defendant's devices could be made parallel without affecting materially the functions discharged by them.

XLVII.

That the Court erred in not finding that said Edward Double, having elected to use and specify the well-known hollow slotted extension type of under-reamer and to have claimed same in the letters patent sued on, could not be heard to say that the letters patent sued on cover defendant's devices.

XLVIII.

That the Court erred in finding that if a web were placed between the prongs of the defendant's devices such formation would become hollow and slotted, unless such hollow and slot were deliberately provided in such web.

XLIX.

That the Court erred in finding that the lateral shoulders on the cutters of defendant's devices are the equivalents of the inwardly directed shoulders on the cutters of the devices of the letters patent sued on.

L.

That the Court erred in not finding that the prior so-called O'Donnell and Willard reamer device is provided with enlarged key-seats in the cutters in full anticipation of the corresponding feature of the letters patent sued on.

LI.

That the Court erred in not finding that the changes and variations in the defendant's devices were for definite objects and purposes distinguished from the objects, purposes and features of construction of the devices of the letters patent sued on. [861]

LII.

That the Court erred in finding that defendant's devices or any of the same are or is a mechanical equivalent in part or in whole of the devices of the letters patent sued on and therefore infringe the latter.

LIII.

That the Court erred in granting any injunctive relief whatsoever to complainants or a decree to complainants, or allowing costs to complainants, or allowing any relief or recovery whatsoever to complainants.

LIV.

That said Court erred in not finding and decreeing that the Bill of Complaint be dismissed and this cause be dismissed for want of equity.

LV.

That the Court erred in not finding that said Edward Double surreptitiously applied for the letters patent sued on and was not the original, first, sole and independent inventor of the alleged invention of the letters patent sued on and wrongfully obtained said letters patent sued on.

In order that the foregoing Assignment of Errors may be made of record, the defendant presents the

same to the Court and petitions that disposition may be made thereof in accordance with the laws of the United States thereunto provided.

WHEREFORE, the defendant prays that the said decree and order of this Court made and entered on July 1st, 1916, enjoining and restraining defendant, be reversed, in part and in whole, and that the Bill of Complaint herein be ordered dismissed, and that the restraining order herein be ordered vacated, and that the United States District Court for the Southern District of California, Southern Division, be directed to enter [862] an order, accordingly, and setting aside in entirety the order and decree of July 1st, 1916, with costs to defendant.

Respectfully submitted,

RAYMOND IVES BLAKESLEE,

Solicitor and of Counsel for Defendant. [863]

[Endorsed]: In Equity—Cir. Ct. No. 1540. United States District Court, Southern District of California, Southern Division. Union Tool Co. et al., Complainants, vs. Wilson & Willard Mfg. Co., Defendant. Assignment of Errors. Filed Jul. 19, 1916. Wm. M. Van Dyke, Clerk. By R. S. Zimmerman, Deputy Clerk. Raymond Ives Blakeslee, 728-30 California Building, Los Angeles, Cal., Solicitor for Defendant. [864]

[Documentary Internal Revenue Stamp. 4.  
Cancelled Jul. 27, 1916.]

[Documentary Internal Revenue Stamp. 1.  
Cancelled Jul. 27, 1916.]

*In the United States District Court, Southern Dis-  
trict of California, Southern Division.*

IN EQUITY—CIR. CT. No. 1540.

UNION TOOL COMPANY et al.,

Complainants,

vs.

WILSON & WILLARD MANUFACTURING  
COMPANY,

Defendant.

**Bond on Appeal.**

KNOW ALL MEN BY THESE PRESENTS:  
That Maryland Casualty Company, a corporation  
organized and existing under the laws of the State  
of Maryland, and duly licensed to transact business  
in the State of California, is held and firmly bound  
unto Union Tool Company, Edward Double, Rosa  
Eichenhofer, as administratrix of the estate of  
Friedrich Eichenhofer, deceased, and George L.  
Chadderdon, complainants in the above-entitled suit,  
in the penal sum of Two Hundred Fifty Dollars  
(\$250), to be paid to the said Union Tool Company,  
Edward Double, Rose Eichenhofer, as administra-  
trix of the estate of Friedrich Eichenhofer, deceased,  
and George L. Chadderdon, their heirs, executors,  
administrators, successors and assigns, which pay-  
ment well and truly to be made the Maryland Casu-

alty Company binds itself, its successors and assigns, firmly by these presents.

Sealed with the corporate seal and dated this 27th day of July, 1916.

The condition of the above obligation is such that whereas the said defendant, Wilson & Willard Manufacturing Company, of the above-entitled suit, is about to take an appeal [865] to the United States Circuit Court of Appeals for the Ninth Circuit to reverse an order or decree made, rendered and entered on the 1st day of July, 1916, by the District Court of the United States, for the Southern District of California, Southern Division, in the above-entitled cause by which the said defendant, Wilson & Willard Manufacturing Company, was enjoined and restrained from infringement of United States Letters Patent No. 734,833, and were awarded other relief, with costs to said complainants:

NOW, THEREFORE, the condition of the above obligation is such that if said Wilson & Willard Manufacturing Company shall prosecute its said appeal to effect and answer all damages and costs if they shall fail to make good their appeal, then this obligation shall be void; otherwise to remain in full force and effect.

IN WITNESS WHEREOF, the seal and signature of said principal is hereunto affixed and the corporate name of said surety is hereunto affixed and attested by its duly authorized attorneys in fact, at



1034 *Wilson & Willard Manufacturing Company*

Los Angeles, California, this 27th day of July, 1916.

MARYLAND CASUALTY COMPANY,  
[Seal of Maryland Casualty Company.]

By J. L. VAN NORMAN,  
Attorney in Fact.

[Seal] And by V. J. NORTH,  
Attorney in Fact,

WILSON & WILLARD MANUFACTUR-  
ING COMPANY,

Per E. C. WILSON,  
Prest.

State of California,  
County of Los Angeles,—ss.

On this 27th day of July, in the year one thousand nine hundred and sixteen A. D., before me, L. B. Belcher, a notary public in and for said county and State, residing therein, duly commissioned and sworn, personally appeared J. L. Van Norman and [866] V. J. North, known to me to be the duly authorized attorneys in fact of the Maryland Casualty Company, and the same persons whose names are subscribed to the within instrument as attorneys in fact of said company, and the said J. L. Van Norman and V. J. North duly acknowledged to me that they subscribed the name of the said Maryland Casualty Company thereto as principal and their own names as attorneys in fact.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year

in this certificate first above written.

[Notarial Seal]

L. B. BELCHER,

Notary Public in and for the County of Los Angeles,  
State of California.

(OK—F. S. L.) [867]

[Endorsed]: In Equity—Cir. Ct. No. 1540.  
United States District Court, Southern District of  
California, Southern Division. Union Tool Co. et  
al., Complainants, vs. Wilson & Willard Mfg. Co.,  
Defendant. Bond on Appeal. Approved 7/28/16.  
Trippet, Judge. Filed Jul. 28, 1916. Wm. M.  
Van Dyke, Clerk. By Leslie S. Colyer, Deputy  
Clerk. Approved Sept. 7, 1916. Bledsoe, Judge.  
Ok. as to form, surety and signatures. Frederick  
S. Lyon, Solr. for Complainants. Raymond Ives  
Blakeslee, 728–30 California Building, Los Angeles,  
Cal., Solicitor for Defendant. [868]

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*In the United States District Court, Southern Dis-  
trict of California, Southern Division.*

IN EQUITY—CIR. CT. No. 1540.

UNION TOOL COMPANY et al.,

Complainants,

vs.

WILSON & WILLARD MANUFACTURING  
COMPANY,

Defendant.

**Affidavit of Service.**

State of California,

County of Los Angeles,—ss.

Alfred H. Daehler, being duly sworn according

to law, says: That he is a patent solicitor and assistant in the office of Raymond Ives Blakeslee, solicitor and of counsel for defendant-appellant herein; that he is upwards of the age of twenty-one years and a citizen of the United States; that he served a true copy of the within and annexed paper upon Frederick S. Lyon, solicitor and of counsel for complainants-appellees herein, at the office of said Lyon, in the Merchants Trust Building, South Broadway, Los Angeles, California, at the hour of — o'clock — M., this — day of September, 1916, by handing to said Lyon a true copy of the within and annexed paper and at same time exhibiting to said Lyon the original within and annexed paper.

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Subscribed and sworn to before me this — day of September, 1916.

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Notary Public in and for the County of Los Angeles,  
State of California. [869]

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*In the United States District Court, Southern District of California, Southern Division.*

IN EQUITY—CIR. CT. No. 1540.

UNION TOOL COMPANY et al.,

Complainants,

vs.

WILSON & WILLARD MANUFACTURING  
COMPANY,

Defendant.

**Praecept Under Rule 75.**

To the Clerk of the Court:

You will please incorporate into the transcript on appeal from this Court to the Circuit Court of Appeals, on order allowing appeal on behalf of defendant, made and entered July 21, 1916, the following portions of the record of this cause in equity, to wit:

The testimony and record and proceedings in connection therewith taken and had in this cause, in narrative and condensed form, as filed herewith.

The Bill of Complaint stating the same cause of action herein and which was dismissed on motion of defendant prior to the filing of the bill of complaint herein.

The Demurrer to said Bill of Complaint.

The Answer to said Bill of Complaint.

The Motion to Dismiss said Bill of Complaint.

The Bill of Complaint herein.

The Answer, the Amended Answer and the Amendments to the Answer of defendant herein.

The Motion for Leave to take testimony in open Court therein.

The Assignment of Errors filed herein. [870]

The Petition for Order Allowing Appeal herein.

The Order Allowing Appeal herein, signed by Judge Bledsoe.

The Citation on Appeal herein.

The names and addresses of the solicitors and counsel for the parties herein.

The Subpoena Ad Respondendum.

All of the original exhibits herein.

The Court Order as to withdrawal and transfer to the Circuit Court of Appeals for the Ninth Circuit of all exhibits herein.

The Bond on Appeal.

This Praecipe.

The Opinion of the District Judge on file herein; and,

The Decree herein.

Very respectfully,

RAYMOND IVES BLAKESLEE,

Solicitor and of Counsel for Defendant-Appellant.

[871]

[Endorsed]: In Equity—Cir. Ct. No. 1540. United States District Court, Southern District of California, Southern Division. Union Tool Company et al., Complainants, vs. Wilson & Willard Mfg. Co., Defendant. Praecipe Under Rule 75. Received a copy of within this 5th day of Sept., 1916. Frederick S. Lyon, Solr. for Compt. Raymond Ives Blakeslee, 728-30 California Building, Los Angeles, Cal., Solicitor for Defendant. Filed Sep. 5, 1916. Wm. M. Van Dyke, Clerk. By Leslie S. Colyer, Deputy Clerk. [872]



*In the District Court of the United States of America, in and for the Southern District of California, Southern Division.*

IN EQUITY—C. C. No. 1540.

UNION TOOL COMPANY, EDWARD DOUBLE,  
ROSA EICHENHOFER, as Administratrix  
of the Estate of FRIEDRICH EICHEN-  
HOFER, Deceased, and GEORGE L.  
CHADDERDON,

Complainants,

vs.

WILSON & WILLARD MANUFACTURING  
COMPANY,

Defendant.

**Certificate of Clerk U. S. District Court to  
Transcript of Record.**

I, Wm. M. Van Dyke, Clerk of the District Court of the United States of America, in and for the Southern District of California, do hereby certify the foregoing Eight hundred seventy-two (872) typewritten pages, numbered from 1 to 872, inclusive, and comprised in two (2) volumes, to be a full, true and correct copy of the Bill of Complaint, Subpoena, Amended Answer, Memorandum Decision, Interlocutory Decree, Notice That Complainants desire testimony to be taken orally, Condensed Statement of Evidence, Order for Transmission of Exhibits, Petition for Order Allowing Appeal, Order Allowing Appeal, Assignment of Errors, Bond on Appeal, and the Praeceptum under Rule 75, in the

above and therein entitled cause, and that the same together constitute the record in said cause as specified in the said Praecipe filed in my office on behalf of the Appellant by his Solicitor of Record.

I further certify that the cost of the foregoing [873] record is \$425, the amount whereof has been paid me by Wilson & Willard Manufacturing Company, the Appellant herein.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seal of the District Court of the United States of America, in and for the Southern District of California, this 30th day of April, in the year of our Lord one thousand nine hundred and seventeen, and of our independence the one hundred and forty-first.

[Seal]

WM. M. VAN DYKE,

Clerk of the District Court of the United States of America, in and for the Southern District of California. [874]

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[Endorsed]: No. 2996. United States Circuit Court of Appeals for the Ninth Circuit. Wilson & Willard Manufacturing Company, a Corporation, Appellant, vs. Union Tool Company, a Corporation, Edward Double, Rosa Eichenhofer, as Administratrix of the Estate of Friedrich Eichenhofer, Deceased, and George L. Chadderdon, Appellees. Transcript of Record. Upon Appeal from the

United States District Court for the Southern District of California, Southern Division.

Filed May 4, 1917.

F. D. MONCKTON,

Clerk of the United States Circuit Court of Appeals  
for the Ninth Circuit.

By Paul P. O'Brien,  
Deputy Clerk.

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*In the United States Circuit Court of Appeals,  
Ninth Judicial Circuit.*

WILSON & WILLARD MANUFACTURING  
COMPANY,

Appellant,

vs.

UNION TOOL COMPANY et al.,

Appellees.

**Order Extending Time to January 1, 1917, to File  
Record.**

Good cause appearing therefor,

IT IS HEREBY ORDERED, that the time heretofore allowed said appellant to docket said cause and to file the record thereof, with the clerk of the United States Circuit Court of Appeals for the Ninth Circuit, be and the same is hereby enlarged and extended to and including the 1st day of January, 1917.

Dated at Los Angeles, California, September 25, 1916.

BLEDSON,

U. S. District Judge, Southern District of California.

1042 *Wilson & Willard Manufacturing Company*

[Endorsed]: No. —. United States Circuit Court of Appeals, Ninth Circuit. Wilson & Willard Mfg. Co., Appellant, vs. Union Tool Co. et al., Appellees. Order Extending Time to Jan. 1, 1917, to File Record.

No. —. United States Circuit Court of Appeals for the Ninth Circuit. Order Under Rule 16 Enlarging Time to — to File Record Thereof and to Docket Case. Filed Oct. 2, 1916. F. D. Monckton, Clerk.

*In the United States Circuit Court of Appeals,  
Ninth Judicial Circuit.*

WILSON & WILLARD MANUFACTURING  
COMPANY,

Appellant,

vs.

UNION TOOL COMPANY et al.,

Appellees.

**Order Extending Time to February 1, 1917, to File  
Record.**

Good cause appearing therefor,

IT IS HEREBY ORDERED, that the time heretofore allowed said appellant to docket said cause and to file the record thereof, with the clerk of the United States Circuit Court of Appeals for the Ninth Circuit, be and the same is hereby enlarged and extended to and including the first day of February, 1917.

Dated at Los Angeles, California, December 15, 1916.

BLEDSON,  
U. S. District Judge, Southern District of California.

[Endorsed]: No. —. United States Circuit Court of Appeals, Ninth Judicial Circuit, Wilson & Willard Mfg. Co., Appellant, vs. Union Tool Co. et al., Appellees. Order Extending Time to Feb. 1, 1917, to File Record.

No. —. United States Circuit Court of Appeals for the Ninth Circuit. Order Under Rule 16 Enlarging Time to Feby. 1, 1917, to File Record Thereof and to Docket Case. Filed Dec. 18, 1916. F. D. Monckton, Clerk.

*In the United States Circuit Court of Appeals,  
Ninth Judicial Circuit.*

WILSON & WILLARD MANUFACTURING  
COMPANY,

Appellant,

vs.

UNION TOOL COMPANY et al.,

Appellees.

**Order Extending Time to April 1, 1917, to File  
Record.**

Good cause appearing therefor, and it appearing from representations of counsel that the parties to this litigation are attempting to arrive at a settlement of the issues involved,—

IT IS HEREBY ORDERED, that the time here-



tofore allowed said appellant to docket said cause and to file the record thereof, with the clerk of the United States Circuit Court of Appeals for the Ninth Circuit, be and the same is hereby enlarged and extended to and including the 1st day of April, 1917.

Dated at Los Angeles, California, January 10th, 1917.

BLEDSON,

U. S. District Judge, Southern District of California.

[Endorsed]: No. —. United States Circuit Court of Appeals, Ninth Judicial Circuit. Wilson & Willard Mfg. Co., Appellant, vs. Union Tool Co. et al., Appellees. Order Extending Time on Appeal.

No. —. United States Circuit Court of Appeals for the Ninth Circuit. Order Under Rule 16 Enlarging Time to April 1st, 1917, to File Record Thereof and to Docket Case. Filed Jan. 11, 1917. F. D. Monckton, Clerk.

*In the United States Circuit Court of Appeals,  
Ninth Judicial Circuit.*

WILSON & WILLARD MANUFACTURING  
COMPANY,

Appellant,

vs.

UNION TOOL COMPANY et al.,

Appellees.

**Order Extending Time to May 1, 1917, to File  
Record, etc.**

Good cause appearing therefor,

IT IS HEREBY ORDERED, that the time heretofore allowed said appellant to docket said cause and to file the record thereof with the clerk of the United States Circuit Court of Appeals for the Ninth Circuit, be and the same is hereby enlarged and extended to and including the 1st day of May, 1917.

Dated at Los Angeles, Cal., March 26, 1917.

BLEDSON,

U. S. District Judge, Southern District of California.

[Endorsed]: No.—. United States Circuit Court of Appeals, Ninth Judicial Circuit. Wilson & Willard Mfg. Co., Appellant, vs. Union Tool Co. et al., Appellees. Order Extending Time to May 1, 1917, to File Record, etc.

No. ——. United States Circuit Court of Appeals for the Ninth Circuit. Order Under Rule 16 Enlarging Time to May 1st, 1917, to File Record Thereof and to Docket Case. Filed Mar. 30, 1917. F. D. Monckton, Clerk.

*In the United States Circuit Court of Appeals,  
Ninth Judicial Circuit.*

WILSON & WILLARD MANUFACTURING  
COMPANY,

Appellant,

vs.

UNION TOOL COMPANY et al.,

Appellees.

**Order Extending Time to May 15, 1917, to File  
Record, etc.**

Good cause appearing therefor, and the condensed statement of the testimony and proceedings thereon for appeal having been agreed upon by the parties and presented to me this day for approval, pursuant to Equity Rule No. 75,—

IT IS HEREBY ORDERED, that the time heretofore allowed said appellant to docket said cause and to file the record thereof with the clerk of the United States Circuit Court of Appeals for the Ninth Circuit, be and the same is hereby enlarged and extended to and including the 15th day of May, 1917.

Dated at Los Angeles, California, April 27, 1917.

BLEDSON,

U. S. District Judge, Southern District of California.

[Endorsed]: No. ——. United States Circuit Court of Appeals, Ninth Judicial Circuit. Wilson & Willard Mfg. Co., Appellant, vs. Union Tool Co. et al., Appellees. Order Extending Time to May 15, 1917, to File Record, etc. Filed Apr. 30, 1917. F. D. Monckton, Clerk.

No. 2996. United States Circuit Court of Appeals for the Ninth Circuit. Five Orders Under Rule 16 Enlarging Time to and Including May 15, 1917, to File Record Thereof and to Docket Case. Re-filed May 4, 1917. F. D. Monckton, Clerk. 82.